JULY
1953

fueloil & oil heat

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These factors cut maintenance time and cost to a minimum, as the BiRotor operates longer with less need for service. When cleaning or maintenance is required, complete unit assemblies are readily removed and replaced, permitting centralized shop servicing. There's a BiRotor for every petroleum metering need. Investigate today.

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JULY Fueloil & oilheat 1953

VOLUME 12 NUMBER 7

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Among other things . . .

The cover picture shows eight Seattle high school seniors who spent the day as guests of Griffin Fuel Co. to get some idea of how business is done outside the school's Commercial department. The girls, left to right, are Shirley McVay, Dixie Coburn, Renee Johanson and Jackie Harden; the boys, Bruce White, Ken Dorset, Ray DeBernardi and Don Carmighani. One feature this month explores dealer doings out there.

Another looks over the Brooklyn gas utility drive to convert oilburners and brings some fresh ammunition for use of dealers in other parts of the country.

Weather forecasting six months ahead is making real progress with the airlines experts and one of them tells with diagrams how he has forecast degree-days.

Now that airconditioning for homes seems riding high, oil for cooling breaks into the act . . . oil actually makes steam and the steam does the cooling job.

Names in the News

Frank Snowberg, 62, veteran heating controls salesman for Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., died June 3 in St. Petersburg, Fla., after a brief illness. One of the company's oldest salesmen, both in years and point of service, he was known to a wide segment of the heating industry. Snowberg joined the Honeywell sales organization 27 years ago in Minneapolis, his native city. He spent ten years with the home office sales force and has been located in the company's central region headquarters at Cleveland, Ohio, since 1935.

Eric G. Peterson has been appointed executive vice-president, Peabody Engineering Corp., New York 19, N. Y. Peterson, who graduated from Stevens Institute of Technology, has been with Peabody Engineering since 1928. His new assignment now covers all phases of research and engineering, production and sales.

Dr. Finn J. Larsen has been appointed director of research, Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. Dr. Larsen, a member of the company's research and engineering organization since 1948, succeeds Dr. Waldo Kliever. Since 1952, Dr. Larsen has been director of ordnance engineering for Honeywell, supervising the work the company's expanded ordnance division has been carrying out in the development of fire control systems for tanks and other control devices in the fields of radio activity, explosives and missiles. He will continue to have responsibility for this work, in addition to his new duties as research director.

R. A. Sherer has been appointed sales manager, White-Rodgers Electric Co., St. Louis, Mo. Sherer has been with White-Rodgers since 1943. He had served in various capacities such as general foreman of night factory operations, general foreman of inspection and manager of White-Rodger's quality control division. In 1948 Sherer was transferred to sales, first handling special project sales and then attached to the Chicago region as Chicago district manager, finally becoming Chicago regional manager, a position he now vacates.

ALERT SERVICE MEN SAY "General" FUEL OIL FILTERS

✓ AND CHECK OFF THESE ADVANTAGES

☐ **QUICK PROFIT**
Generals are *easy to sell* because customers *need* GF's positive filtering protection.

☐ **EASY SERVICE**
Single-bolt assembly means instant, sure servicing — no time lost through troublesome "call-backs."

☐ **REPEAT SALES**
Seasonal cartridge changes aid in finding new filter prospects, assure lucrative, dependable earnings.

☐ **SUPER-FILTRATION**
Finest *all-wool* cartridge and GF's unique filter design mean the *safest* filtering known!

2A-700
for average needs

1A-25
for small stoves, heaters, etc.

Veteran fuel oil service men enthusiastically agree that GENERAL FUEL OIL FILTERS are the finest *all-wool-cartridge* filter money can buy! Easily replaceable felt cartridges not only reduce maintenance to a few simple steps but assure positive filtering which puts an end to unprofitable service "call-backs." One cartridge change covers the entire season. In addition, GF's quick, out-in-the-open installations save you time and money on every job.

ANOTHER MONEY-MAKER!
CLEAN RIGHT Soot Remover works safely, gently, quickly cleans any heating plant. Made for General Filters, Inc.

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GENERAL FUEL OIL FILTERS
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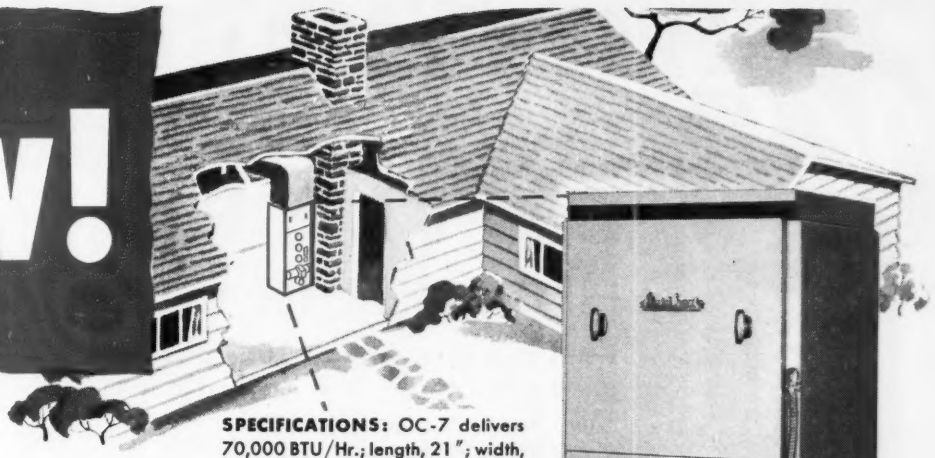
CANADIAN FACTORY BRANCH: CANADIAN GENERAL FILTERS, LTD., 2679 DANFORTH AVENUE, TORONTO 13, ONTARIO

Now!



SPECIFICATIONS: OC-7 delivers 70,000 BTU/Hr.; length, 21"; width, 21"; height, 70". *Also* OC-9 model to deliver 90,000 BTU/Hr.

it's easy to sell the "no cellar" home with fluid heat

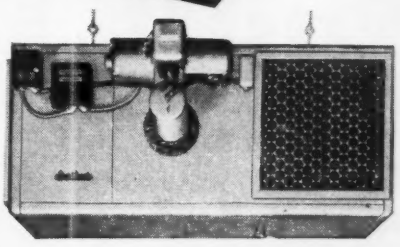
COUNTERFLOW UNITS

● Fluid Heat's Famous counterflow heating units, OC-7 and OC-9, are specifically designed to provide quiet, dependable and healthful perimeter heating for small, compact houses without basements.

They give you all the selling power of a well-built heating unit combined with a rapidly expanding market in the homes-without-basement trend. No wonder these Fluid Heat units are the most wanted winter air conditioners in your territory.

So, go after the small houses and bungalows . . . armed with the sales appeal of these Fluid Heat Counterflow units. You'll find them easiest to sell because they offer immediate delivery, pricing to meet competition, compact design and zero inches clearance!

For full details write to: FLUID HEAT DIVISION, Anchor Post Products, Inc., 6700 Eastern Avenue, Baltimore 24, Maryland; or Colbaugh Street, Red Oak, Iowa.



AND WHERE FLOOR SPACE IS PRECIOUS . . .

homes with crawlways, retail shops, garages, filling stations and supermarkets . . .

YOUR BEST BET IS FLUID HEAT SUSPENDED CEILING TYPE FURNACES!

NATIONALLY ADVERTISED

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Division of **ANCHOR POST PRODUCTS,** *Inc.*

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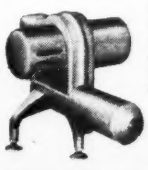
A FLUID HEAT UNIT FOR EVERY HEATING PROBLEM

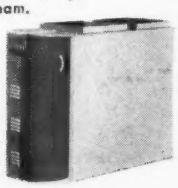
OIL-FIRED UNITS



Famous Fluid Heat Pressure Burners. Four models, with firing rates from 7/10 to 12 gallons per hour.

Famous Fluid Heat Wall Flame Rotary Burner. Two models with firing rates from ½ to 4½ gallons per hour.

Famous Fluid Heat Boiler Burner Units. Six models, rated from 300 to 1090 sq. ft. of standing steam.

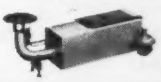


Famous Fluid Heat Warm Air Furnaces. Seven models, from 70,000 to 335,000 B.T.U. per hour.

GAS-FIRED UNITS

New Fluid Heat Gas-Fired Warm Air Furnaces with rated inputs of 70,000 to 140,000 B.T.U. per hour.

Single-port, Fluid Heat Gas Conversion Burners. Rated inputs of 75,000 to 300,000 B.T.U. per hour.



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STEEL
Water Tube
BOILERS
FOR STEAM OR HOT WATER
BUILT TO LAST A LIFETIME
UNDER ANY CONDITIONS

¼" PLATE — ¼" wall, TUBES

Qualified for A.S.M.E. Marking

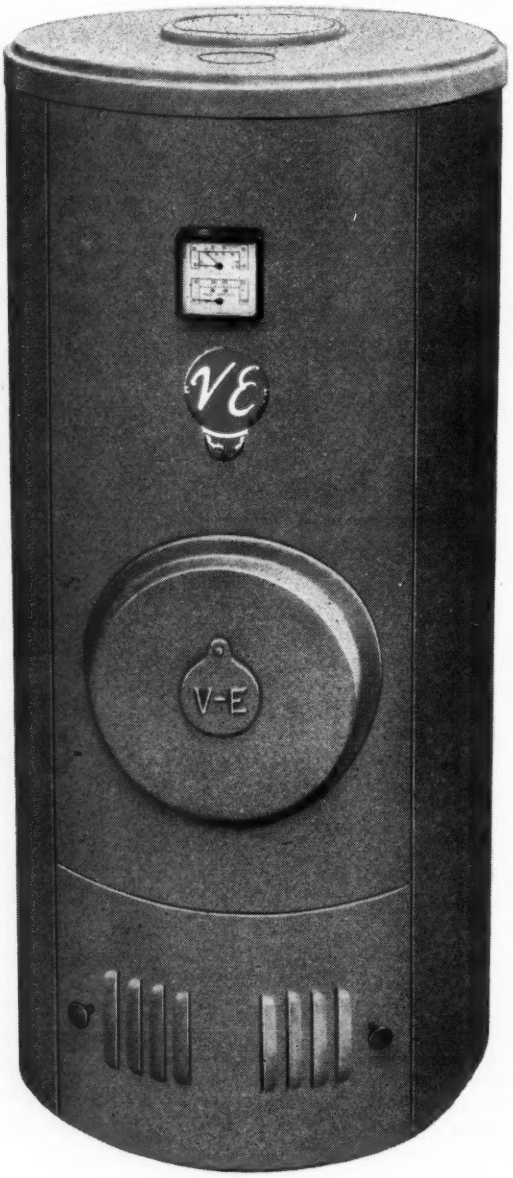
THE
WALLFLAME
BOILER

A TIME TESTED AND FIELD PROVEN BOILER THAT FULLY DEVELOPS THE SUPERIOR QUALITIES OF THE

ROTARY BURNER
TO PROVIDE EFFICIENCIES
WELL OVER 80%

EASY —
TO GET IN THE BASEMENT
TO INSTALL
TO CLEAN & SERVICE
TO SELL

- ECONOMICAL
- BEAUTIFUL
- EFFICIENT
- COMPACT
- QUIET



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Joseph A. Grazier was elected acting president, American Radiator & Standard Sanitary Corp., Pittsburgh 30, Pa., at a special meeting of the board of directors. This action was taken because of the continued illness of Theodore E. Mueller, president of the corporation.

Palmer Paist has been elected vice-president in charge of sales, Monogram Products Co., Inc., Philadelphia, Pa., makers of combustion chambers, according to an announcement by R. Eisentrager, president. Paist is a veteran sales manager in the home equipment field.

Tom Gibbons has been appointed director of advertising and sales promotion, The Coleman Co., Inc., Wichita 1, Kans., in a move by the company to consolidate all its advertising and sales promotion activities. From 1947 to 1952 Gibbons was advertising manager of Magic Chef, Inc., and more recently, was director of marketing for Caloric Corp.

Lucien W. Moore, Crane Co., Chicago, Ill., director of purchases, was elected vice-president and *George L. Larson,* general superintendent of the company's Chicago works, was appointed executive assistant. Moore joined Crane in 1922. He has headed its purchasing division since 1941. Moore, as vice-president, will have direction and control of the purchasing division.

Sales Appointments

Jack G. Kehoe named Dayton sales manager for Chrysler Airtemp.

B. Edward Soby appointed assistant to the national advertising and sales promotion manager, Rheem Mfg. Co.

Charles J. Morrison named sales representative for AMER-glas products dept., American Air Filter Co., Inc.

Everett W. Johnson to eastern Iowa district sales manager, Century Engineering Corp., with headquarters in Cedar Rapids.

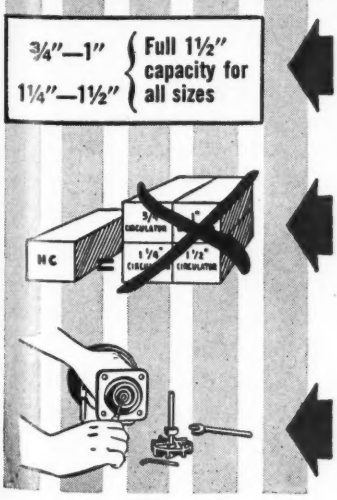
J. C. Turner joins Perfection Stove Co. as salesman for Atlanta, Ga., district which covers southern Alabama.

for LOW COST SERVICE

Buy Taco

Ruggedly Built CIRCULATORS

SAVES YOU MONEY THREE WAYS:



EXTRA CAPACITY

Taco circulators have that extra capacity needed for today's modern small pipe radiant heating jobs (panels, convectors, radiators or baseboards).

LESS AND MORE FLEXIBLE INVENTORY

Interchangeable flanges mean one circular plus four sets of flanges (¾", 1", 1¼" or 1½") equals four sizes of circulators in stock.

A CINCH TO SERVICE

All you need is an open end wrench, screw driver and allen set screw wrench.

Get more information today about Taco's increasingly popular circulators. New users are enthusiastic because Taco is the BIG-VALUE of our industry.

Better Heating — Better with Taco

Taco

TACO HEATERS, Incorporated
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Editorial Leaks

IN THE PAST FEW DAYS most of the major oil companies have raised prices of crude oil at the well 25¢-35¢ a barrel or roughly ¾¢ a gallon. As a number of economists have pointed out, this is definitely moving against the traditional pattern where supply and demand determine market levels. For that reason the increase may or may not stick. Oil at the moment is more plentiful than customers.

True, crude prices have been static for seven years while operating costs have gone up sharply, yet company profits have stayed high. This was largely because much of the production in those years had been developed or purchased back in the cheap years before the war.

In raising crude now, the majors are first paying themselves more for what they produce, since they own two-thirds of all oil wells, and this will be passed along naturally to the retail market . . . gasoline quickly went up in the East.

But in raising the price on what they buy from independent producers, the other third, they are putting money where it is needed to cover higher costs. Not only that, but they are making these independents feel a little more tractable on the import problem.

With demand off, the wells are cut down to about two-thirds time operation and even that is at low levels of barrels per day allowables. These independents as a result have done their best to get legislation to choke off imports. With a better price for their crude this pressure will ease.

The oilheating industry wants unrestricted imports, so that side of it is to the good.

Why do the majors need more money? At the moment they probably don't, but their early day cheap production is wearing out rather fast, since the industry's great period of expansion has occurred since the war ended. So they saw a serious need for higher product prices fairly soon, and the crude advance was a first step.

On June 25 fueloil prices through most of the East rose 6/10¢ at retail and, theoretically at least, the same amount at wholesale levels. The spot market however is on the soft side.

❖

BATTELLE MEMORIAL Institute of Columbus has refreshed our memory on an item we ran some years ago and reminded us that it's worth saying again. There is no application of oil products in the whole American economy as efficient as oilheating.

Based on Btu in the fuel actually used for energy . . . an automobile, they say, is 5% efficient, a tractor is 6%, a steam locomotive 7%, a ship 11%, a diesel locomotive 23% and an oil furnace 60%. Of course, we claim 65%-70% on ordinary jobs, 75% on the best, but even so it looks like they're on our team.

❖

STEWART FIRTH of Mays Landing, N. J., in explaining why he didn't renew his subscription, says, "Your magazine was always very helpful to me and always had good stuff, but I have given up oilburner work and gone back to my old business of raising turkeys." Who can say which endeavor makes the greater contribution to good living? Out of the fire into the fat as it were.

❖

IT'S A SIGNAL honor in the oilheating industry to be able to wear at important gatherings the little gold nugget in the shape of an Alladin's Lamp.

In the 31 year history of the industry's principal trade association, this award for meritorious service has been given 39 times. About half of the little chunks of gold went to association presidents, the remainder to other men who were given special credit for devoting a lot of their time and energy to help build the 2½ billion dollar industry that oilheating has become.

Probably because the editor was given one at the annual meeting of OHI this spring, and because he's mighty proud of it, this seemed a good time to dig back through the old issues of the magazine and list all of the recipients of the award, from first president Wallace Capen of 1923 down to the present year of our Lord. These are the men:

P. K. Addams
J. H. B. Albert
A. T. Atwill
Edward P. Bailey
C. J. Bassler
Leod D. Becker
W. F. Brannan
R. S. Bohn
Wallace C. Capen
C. H. Chalmers
C. R. Collins
J. A. Collins
T. A. Crawford
C. F. Curtin
Frank H. Dewey
C. S. Dieter
F. H. Faust
R. F. Fisher
E. M. Fleischmann
Robert Gray
F. C. Haab
Morgan J. Hammers
A. E. Hess
Lionel L. Jacobs
J. C. Johnson
C. R. Jonswold
W. A. Kemp
C. E. Lewis
Chas. N. Lockwood
Earl Marr
W. A. Matheson
J. W. Owens
R. M. Sherman
S. H. Shipley
W. J. Smith
F. E. Spencer
Walter Tant
Harry F. Tapp
Ray G. Whipple

There may be others that we failed to locate in the reports of the meetings. If you know of one, let us know.

❖

IT WAS IN the May issue that we had a "Snags" item on slow stack control. Ever since, a control man has been trying to catch up with us to tell of an amusing incident.

This particular burner would now and then go on strike . . . it wouldn't start itself, and the owner eventually discovered that all he had to do to get the burner firing again was to tap the control mounted on the smokepipe.

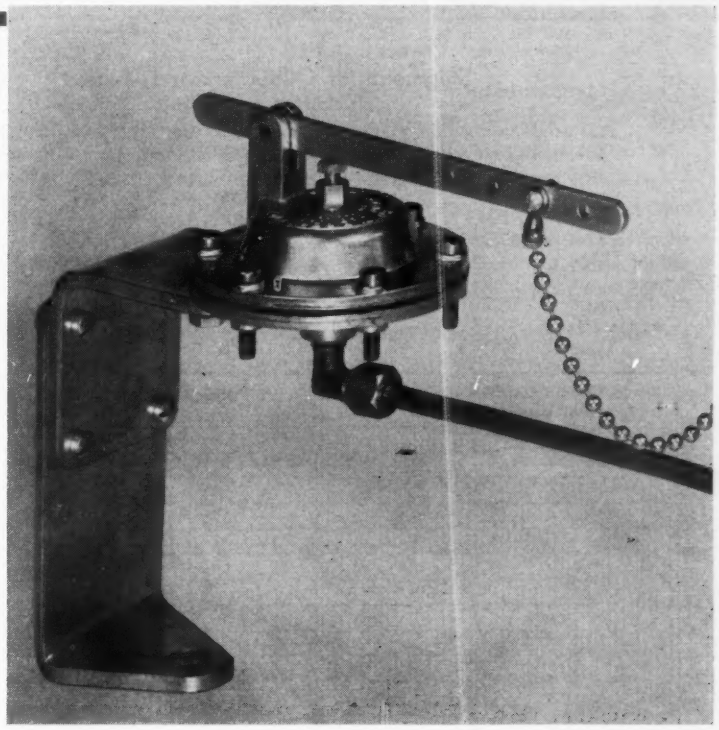
Too frugal to call a service man, each time the home needed heat or hot water the owner, for months, ran downstairs and rapped his knuckles on the control.

Inventive as all get-out, tired of running downstairs, the owner settled down to skull practice and solved his problem.

Right over the stack control he drilled a little hole in the living room floor, under the rug. He ran a string through the hole with a matchstick on top to keep it from falling through, and on the bottom end a block of wood resting on the control.

When the house gets chilly, roll back the rug, jiggle the string just once and the burner starts like magic. And no grimy service men fooling around.

Scully Announces New
AUTOMATIC THROTTLE REGULATOR
for Fuel Oil Truck Pumping



THERE IS A REAL NEED FOR THIS!

For a chauffeur to manually adjust a hand throttle at each and every delivery for the best pumping speed has been a headache for years. And to keep it properly set has been two headaches! Clothes pins, elastic bands, notches, sticks of wood have all been utilized at one time or another to keep the hand throttle adjustment from changing due to vibration during the pumping time. And every chauffeur knows what a nuisance it is to walk back to the truck with a delivery half completed to readjust the throttle.

Some trucks don't have hand throttles. To solve this one, carburetors have been adjusted to take care of pumping speeds with the result that engines run too fast in traffic stops and gear shifting is difficult.

The new Scully Throttle Regulator eliminates all these nuisances. When the power take-off is engaged, Scully Throttle Regulator *automatically* adjusts the engine speed to the proper point for maximum efficiency of the pump r.p.m.'s.

Saves driver time, eliminates motor racing. Pays for itself in short time. You'll want to equip every truck in your fleet with Scully Throttle Regulator.

BENEFITS SCULLY'S THROTTLE REGULATOR BRINGS TO YOU

1. Eliminates manual adjustment of hand throttle.
2. Eliminates need for ever setting up carburetor beyond normal traffic idle.
3. Automatically adjusts engine speed for proper maximum pump efficiency.
4. Eliminates motor and pump racing.
5. Automatically starts tc work when power take-off is engaged.
6. If compartment runs dry, engine automatically returns to idling speed with resultant decrease of pump speed.
7. At transfer to new compartment, engine speed automatically increases to give proper maximum pump efficiency again.
8. When power take-off is disengaged, engine speed decreases to normal traffic idling speed.

Only Operates While Power Take-Off Is Engaged

JUST ORDER ONE NOW FOR YOUR SUMMER TRUCK!

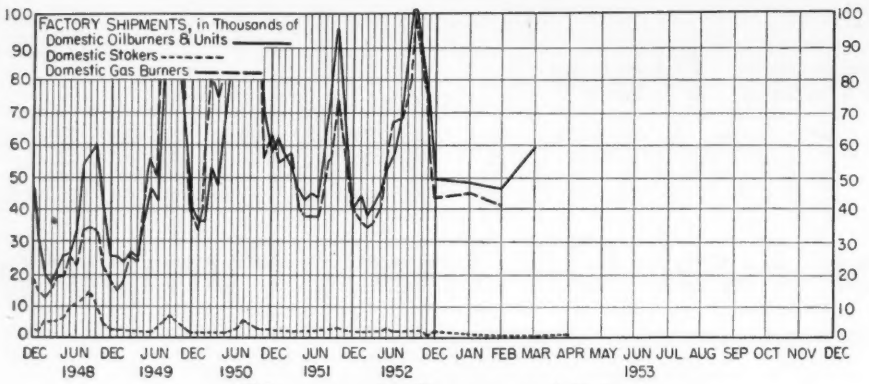
Prove to yourself what a fine device this is. Scully Throttle Regulator is easily installed under engine hood in vicinity of carburetor. We ship you device, mounting brackets and all installation parts. Costs only $29.50 complete.

FUEL TRUCK EQUIPMENT JOBBER INQUIRY IS CORDIALLY INVITED

U.S. Patent No. 2,634,681. Foreign Pats. Pend.

SCULLY SIGNAL COMPANY

76 First Street, Cambridge 41, Mass.

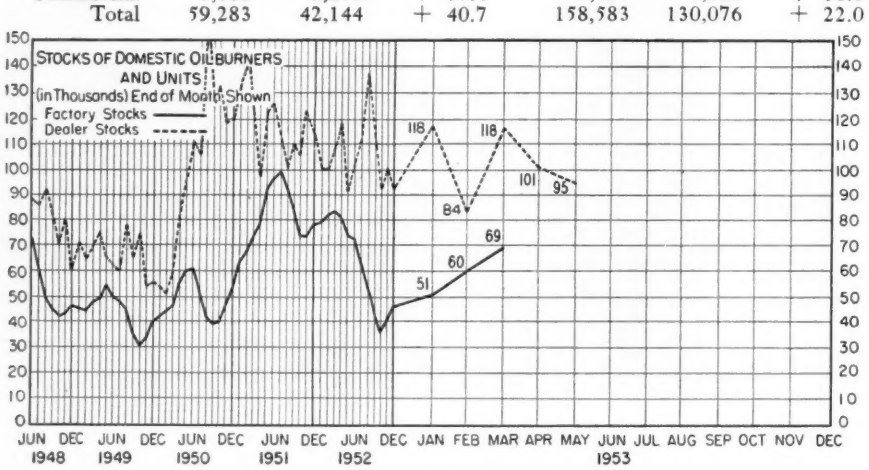

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
Domestic Gas Burners
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1948 1949 1950 1951 1952 1953

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 145 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	MARCH			THREE MONTHS		
	1953	*1952*	*Percent Change*	*1953*	*1952*	*Percent Change*
Conversion	37,935	25,922	+ 46.3	103,546	84,304	+ 22.8
Boiler Units	4,434	2,704	+ 64.0	12,318	8,086	+ 52.3
Furnace Units	13,832	11,242	+ 23.0	33,132	30,404	+ 9.0
All Domestic	56,201	39,868	+ 41.0	148,986	122,794	+ 21.3
Commercial	3,082	2,276	+ 35.4	9,597	7,282	+ 31.8
Total	59,283	42,144	+ 40.7	158,583	130,076	+ 22.0



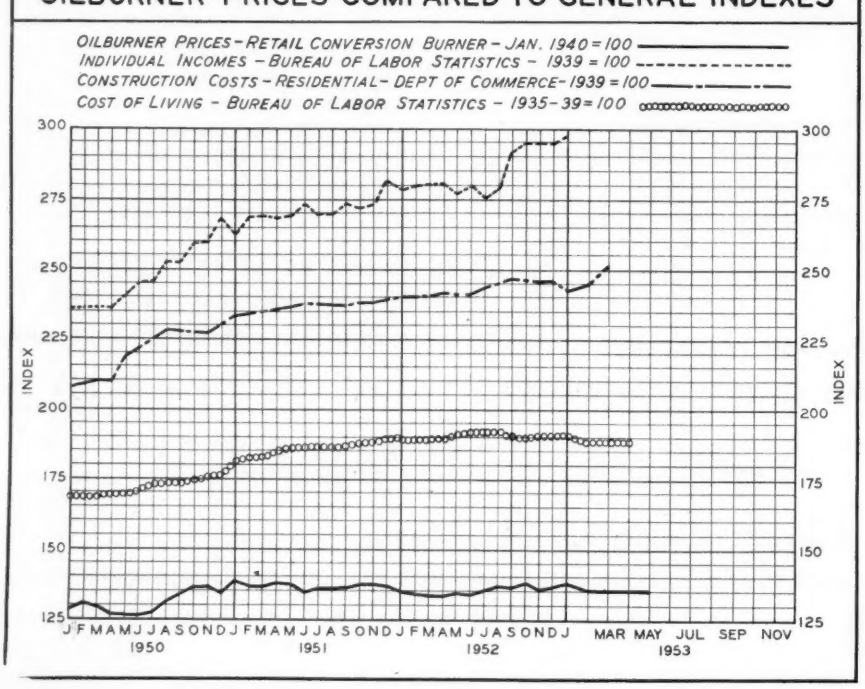
May Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
May Aver.	$319	$707	$639
April Aver.	318	705	638

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE				RETAIL		
May	142.2	Six months ago	144.1	May	137.2	Six months ago	135.7
April	143.4	Year ago	141.6	April	135.0	Year ago	134.7

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES - RETAIL CONVERSION BURNER - JAN. 1940 = 100
INDIVIDUAL INCOMES - BUREAU OF LABOR STATISTICS - 1939 = 100
CONSTRUCTION COSTS - RESIDENTIAL - DEPT OF COMMERCE - 1939 = 100
COST OF LIVING - BUREAU OF LABOR STATISTICS - 1935-39 = 100
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MAR MAY JUL SEP NOV
1950 1951 1952 1953

Oilheating Trends

INSTALLATIONS of domestic oilburners and units during May are estimated at 50,484, or nearly 5% below the 52,947 installed in May last year. These installations were divided: New Homes 17,246; replacements of old oilburners, 5,584; conversions from other fuels 27,654.

Total installations for the first five months of the year were 194,044, compared with last year's 207,706, a decline of a little under 7%. It is rather odd this year that factory shipments of burners are running well above last year while retail sales are behind. Factory shipment figures for the first quarter, the only data so far, were up 21% over 1952. Some of the difference has gone into dealer stocks but not all of it. The other shipments that are unaccounted for apparently have gone into an increase in stocks held by wholesale jobbers and by boiler or furnace manufacturers who buy these burners and later incorporate them in their own product.

BURNER STOCKS: Stocks of domestic oilburners and units in dealer hands on June 1 were 95,202 compared with 101,489 on May 1 and with 91,571 on June 1 the previous year. The current stocks were divided: Conversion oilburners, 56,231; boiler-burner units, 14,851; furnace burner units, 24,120.

Factory stocks on March 31, latest available data, were 69,189 compared with 83,858 on the same date the year before.

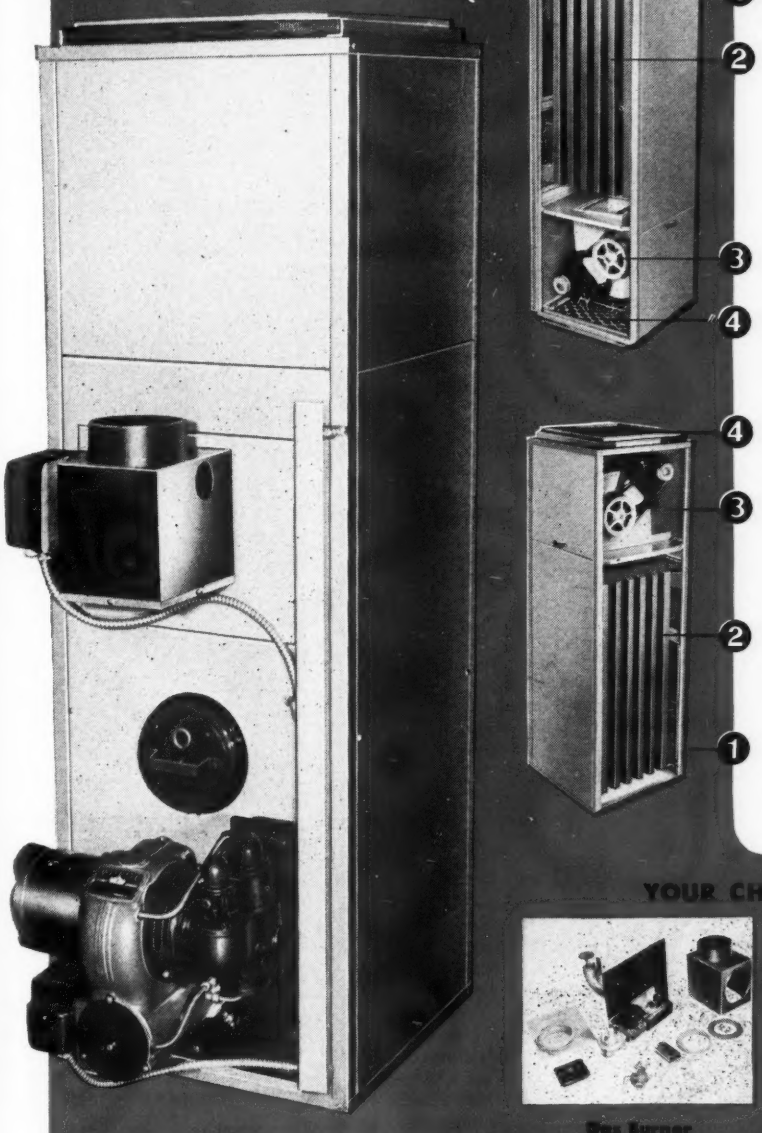
TANK STOCKS: At the start of June dealer stocks of consumer oil tanks were approximately 93,268 compared with 92,117 a month earlier and with 108,531 a year earlier. Now that there is no probability of a steel strike this summer there is little point in piling up tanks beyond current needs. The June 1 stocks were divided by sizes as follows: 220-275 gallon, 84,912; 550-675 gallon, 5,446; 1,000 gallons or larger, 2,810.

During the month of May the average price paid by dealers for a 275 gallon tank was $35 or $1 above the previous month. By sections the average price was: New England, $29; Middle Atlantic, $36; Midwest, $29 and Pacific Northwest, $42.

WHERE ELSE CAN YOU FIND ALL THESE FEATURES IN ONE UNIT?

WINKLER *Universal*

OIL AND GAS-FIRED FURNACES



This furnace meets all home heating requirements in the easiest, most convenient way you've ever seen. The same unit can be used for either conventional or perimeter warm air heating by merely rearranging the parts. The Winkler Universal is a complete package . . . everything included, except ducts, for a basement or utility room installation.

1. **Casing and insulation.** Clean, trim design—baked enamel finish. Cellular asbestos, faced with aluminum foil, produces an amazingly cool casing.

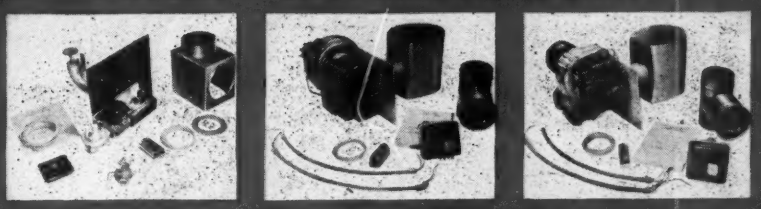
2. **Heat exchanger.** Unique corrugations greatly increase the heat transfer area . . . 42% more area with the same floor space. The distribution pattern of hot gases makes this heat exchanger a quiet, efficient unit.

3. **Extra quiet fan.** All moving parts carried in soft rubber—no vibration.

4. **Filter frame.** Snaps into any of the five sides adjacent to fan compartment... assures greater adaptability to various installing situations...keeps duct costs down.

5. **Pre-wired at factory.** All wiring is in place and connected. Just connect burner and line wiring—a real time saver.

YOUR CHOICE OF THESE FIRING UNITS



Gas Burner | High Pressure Oil Burner | Low Pressure Oil Burner

Individual Winkler Gas Burner kits are provided for natural, manufactured, mixed and LP gases... and for natural and LP gas combination requiring an outside temperature switch.

For oil-firing, the Universal may be equipped with either the Winkler High Pressure or Low Pressure Burner. Oil Burner kits include everything necessary for a complete installation—combustion chamber, controls, barometric draft, etc.

Both Gas and Oil Burner kits are pre-wired for quick, easy connection to the pre-wired Universal Furnace.

Write today for complete information

A PRODUCT OF SW STEWART WARNER

STEWART-WARNER CORPORATION

U. S. MACHINE DIVISION • Dept. H-73 • LEBANON, INDIANA

• AUTOMATIC • WINKLER HEATING EQUIPMENT

SELLING ROOM COOLERS: It was surprising to learn that 32% of the reporting dealer group has sold room cooling units this year. The number sold ranged from 1 to 51 in the first five months of the year, and the average was 7 per dealer. The average sale price across the board for the smallest size unit sold was $288 and the range was from a low of $200 to a high point of $395 for the smallest model sold. The dealers were asked if they found this small cooling unit business profitable and the returns show that 69% did and 31% did not.

WEIGHTED DEGREE DAYS: According to the Socony-Vacuum index of weighted degree days the heating season that closed May 31 was 12.8% warmer than normal in Eastern States (District I) and 6.7% warmer than normal in the Midwest (District II). Before the next heating season starts we will probably adopt the new normals for principal cities as now proposed by the U. S. Weather Bureau and based on a 30 year record instead of the much longer time period of the normals we have been using. The Weather Bureau is convinced that the climate has changed enough to adopt the past 30 years as a pattern.

DOMESTIC HOT WATER: Following a request for another checkup on sources of domestic hot water supply the group was asked this month to show in five categories how this is handled in the oilheated homes that they serve. For the country as a whole 33% of these homes have a summer-winter hookup on boilers; 17% have a boiler hookup for winter and use another fuel in the summer; 4% have separate oilfired water heaters; 43% use another fuel the year round and the final 3% use other methods whatever they may be. On this last item there may be some electric water heating particularly since it is so strong in the Pacific Northwest. The table shows a breakdown by sections of the country:

Oilburner and Building Permits

OILBURNERS					DWELLINGS			
May		5 MONTHS			May		5 MONTHS	
1953	1952	1953	1952		1953	1952	1953	1952
26	49	105	160	Albany, N. Y.	..	..	..	..
45	161	454	700	Baltimore, Md.	299	311	1894	1761
..	..	..	..	Binghamton, N. Y.	11	10	55	45
..	..	..	..	Bloomfield, N. J.	51	4	151	25
..	..	..	..	Boston, Mass.	35	44	154	172
..	54	..	289	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	46	75	237	265
21	14	79	276	Columbus, Ohio	..	..	..	..
..	..	..	..	Des Moines, Iowa	262	95	1144	305
228	501	..	3353	Detroit, Mich.	228	372	1322	1818
45	56	131	161	Elizabeth, N. J.	3	4	19	20
27	30	137	164	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	..	31	..	134
..	..	..	..	Hackensack, N. J.	..	33	..	78
..	100	..	295	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
45	55	139	155	Irvington, N. J.	0	5	14	15
..	..	..	..	Lynn, Mass.	23	15	73	85
34	8	81	153	Meriden, Conn.	..	..	..	..
..	383	..	1389	Milwaukee, Wisc.	..	348	..	1143
22	42	192	487	Minneapolis, Minn.	96	105	456	405
21	27	72	98	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	7	8	39	38
30	38	114	111	Mt. Vernon, N. Y.	..	..	..	..
158	203	614	648	Newark, N. J.	..	..	..	..
42	61	296	567	New Bedford, Mass.	..	..	..	..
44	37	145	290	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
..	15	..	133	New Rochelle, N. Y.	15	28	193	115
..	9139	..	38706	New York City (total)	..	..	..	..
..	8559	..	36052	Brooklyn-Queens	..	..	..	..
549	580	..	2654	Manhattan, Bronx, Rchd	..	..	..	..
104	118	..	315	Norfolk, Va.	49	133	320	737
..	..	..	..	Oakland, Calif.	..	..	..	..
..	33	..	212	Omaha, Nebr.	..	114	..	409
27	24	65	71	Orange, N. J.	2	3	13	8
..	31	..	97	Passaic, N. J.	..	..	..	..
53	89	203	238	Paterson, N. J.	9	19	63	87
..	565	..	2861	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	11	20	64	82
43	55	187	149	Portland, Me.	25	8	65	49
272	401	..	1677	Portland, Oreg.	..	132	..	604
31	11	90	59	Poughkeepsie, N. Y.	..	..	..	..
..	84	..	492	Providence, R. I.	25	24	89	80
..	..	..	..	Reading, Pa.	2	15	27	33
35	18	151	189	Richmond, Va.	34	48	248	279
42	57	156	206	Roanoke, Va.	..	..	..	..
280	272	942	1021	Rochester, N. Y.	..	..	..	..
16	6	78	61	Rockville Center, N. Y.	20	10	54	30
36	17	129	123	Salem, Mass.	2	1	36	20
..	78	..	598	St. Louis, Mo.	35	76	198	228
12	20	115	173	St. Paul, Minn.	125	129	492	505
15	17	102	184	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	180	152	759	828
..	..	..	..	Springfield, Mass.	242	62	..	369
30	42	192	286	Stamford, Conn.	..	..	..	..
7	5	..	34	Syracuse, N. Y.	63	61	..	201
..	..	..	..	Trenton, N. J.	45	43	115	92
..	..	..	..	Utica, N. Y.	11	18	44	58
34	77	247	437	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	37	33	134	136
21	37	87	105	White Plains, N. Y.	8	18	71	58
..	50	..	251	Wilmington, Dela.	12	30	59	74
99	175	466	609	Worcester, Mass.	..	..	..	..
32	61	273	267	Yonkers, N. Y.	..	..	..	..
2252	2815	5772	7801	Totals	1948	1923	8433	8325
—20.0		—26.1		*Percent Change*	+1.3		+1.3	

Source of Domestic Hot Water In Oilheated Homes

	New Eng.	*Mid. Atl.*	*Mid. West*	*Pac. N.W.*	*All Sec.*
Summer-winter hookups on boiler	36%	50%	10%	1%	33%
Boiler hookup winter only, with other fuel in summer	13	28	4	3	17
Separate oilfired water heater	7	4	4	1	4
Use another fuel all year	42	16	78	46	43
Other methods	2	2	4	49	3

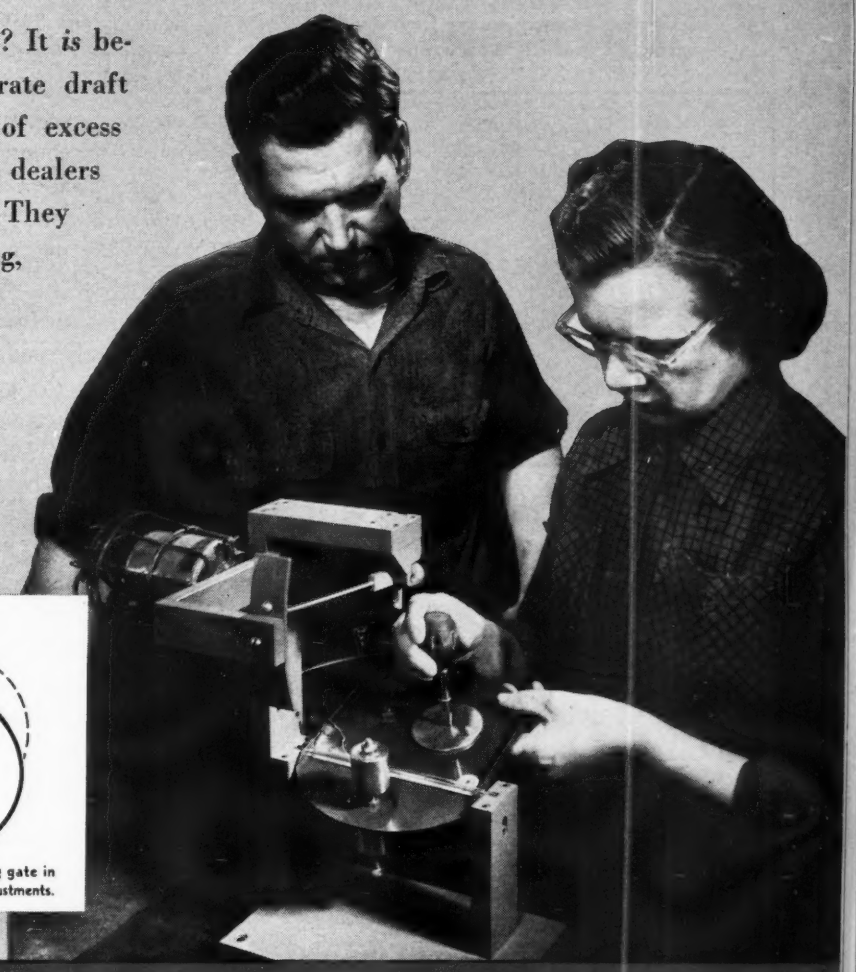
Summing up this table we can see that just about half of the water heating job in oilheated homes is done with fueloil. Gas and electricity get the rest of it. It looks like the manufacturers of water heating equipment for oil have more of a promotional job to do.

Draft Control inaccuracy means fuel waste-

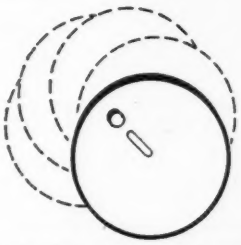
1% for every 1/100" of excess draft*

Is Field's unmatched quality important to you? It *is* because *fuel economy* is important. An inaccurate draft control will commonly permit up to 5/100" of excess draft — a fuel waste up to 5%. That's why wise dealers insist on a Field Control, set with instruments. They know that only a precise Field permits a setting, accurate to within 1/100" — without risk of too little draft, without the waste of excess draft. A score of years, and millions of installations have proven Field's performance.

*Fuel waste without any draft control runs up to 20%; with an inaccurate control 5% fuel wastes are common.



BALANCING FIELD GATES: Steel today varies up to 10% over or under gauge measurements—sufficient to cause errors in draft control performance as great as draft changes of 5/100" or more. To correct these steel tolerances Field gates are counterbalanced using a Duo-Static Balancer.



Eccentric adjustment for balancing gate in the vertical plane, second of two adjustments.

that's why a superbly accurate Field Control saves several times its cost the *first* year

1 — **Made of heavy materials** — Field controls last longer.

2 — **Balanced at factory** — Eliminating weight variations which could affect control's accuracy.

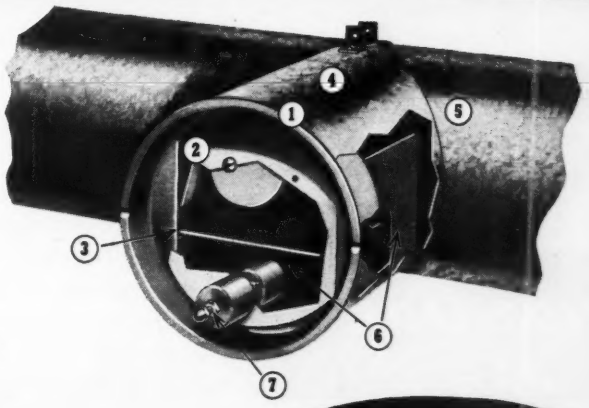
3 — **Rocker type hinge pin**—Quickly responsive, no friction. No sticking.

4 — **Long Collar** — No warping or clogging due to heat or soot, no service calls.

5 — **Free smoke passage** — A Field Control never blocks the flue.

6 — **Side wings and fitted gate** — More accurate because opening in control increases more uniformly.

7 — **Factory adjusted** — Set to maintain .06" draft until instrument setting is made.



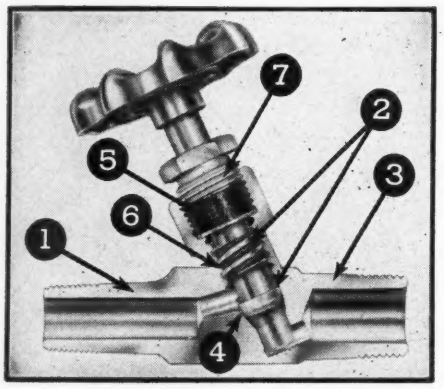
field

DRAFT CONTROLS

FIELD CONTROL DIVISION of M. D. Conkey & Co. - Mendota, Illinois

AFFILIATES: CONCO BUILDING PRODUCTS, INC.—Brick, Tile, Stone
CONCO MATERIALS HANDLING DIVISION—Cranes, Hoists

The INSIDE STORY of *Guardian* SUPERIORITY



No. 1900 Oil Filter Valve

No. 1905 Oil Filter Valve made with ½" inlet I.P.T. male threads and ⅜" outlet I.P.T. male threads.

One valve may look much like another on the outside—but it's what's INSIDE that counts! Every Guardian valve has these features of superiority shown in the cutaway above:

1. Denser, superior graining of extruded brass.
2. Finer machined thread and seating surfaces.
3. Greater wall strength and body strength.
4. Identical brass in stem and seat for greater wear . . . eliminates seizure.
5. Preformed asbestos - graphite rings for packing uniformity.
6. Quick-acting threads for opening and closing.
7. Adjustable packing nut for take-up of packing wear.

No. 1300 Two Tank Control Valve Assembly

No. 1600 Underground Tank Valve

No. 1400 Globe Valve for Oil, Water or Gas

No. 1200 Individual Tank Control Valve

Guardian valves are designed for oil line service . . . built with precision . . . tested for uniformity. Look for the name "Guardian" on the valve.

Write for Bulletin V-101.

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

Guardian PRODUCTS CORP.
VALVE DIVISION

Dept. F-73, 1231 E. Second Street

Michigan City, Indiana

BUYING SOURCES: Following the study reported on page 16 of the April issue of FUELOIL & OIL HEAT where buying sources for boilers were explored, there have been several requests for similar information on conversion burners and oil furnaces. A new study this month shows that the reporting dealers buy 84% of their conversion burners direct from factories and 16% through wholesale houses. There was some variation on this by sections of the country. In New England 90% were bought direct from factories, in Mid-Atlantic states 91%, in the Midwest 72% and in the Pacific Northwest 70%.

The percentage with furnace burner units was relatively similar. For the country as a whole the group buys 85% of furnace-burner units direct from factories and 15% through wholesale channels. In New England 87% are bought direct from factories, in the Mid-Atlantic states 84%, in the Midwest, 78%, and the Pacific Northwest, 98%.

It is interesting to note when the same dealer group was asked about boilers in March we found that they bought 71% of their boiler-burner units direct from factories and 29% from wholesalers.

It should be recognized in a study of this kind that these returns are from dealers who have a genuine interest in oilheating. Very few of the answers come from the small plumber or heating contractor who sells oilheating only incidentally, perhaps a half dozen jobs a year and more often than not buys these few jobs from the local supply house. Thus the per cent of the total market going through supply houses would be somewhat larger than these figures indicate but not too much larger.

The reporting dealers were then asked what share of their furnace-burner units are made by typical oilburner manufacturing companies and how many are made by old line furnace companies that have come into the industry through adding an oilburner to their product. The group reports 78% from oilburner manufacturers, 22% from furnace manufacturers. By sections of the country there was some variation . . . in New England 80% come from the oilburner type of manufacturer; in Mid-Atlantic states 93% are from that source; in the Midwest 75%; and in the Pacific Northwest only 16% of the furnace units come from the oilburner type company.

Then the dealers were asked where the supply of furnaces is located in instances where they buy direct from the factory. They report that 90% are shipped direct to them from the factory and 10% come from the regional factory warehouses.

The dealers who buy conversion burners and warm air units direct from factories were asked how much they save with this method compared with buying these items through jobbers. The estimated savings ranged from 5% to 30% and the composite figure was 14.6%. This is probably about right for, even though jobber margins are theoretically higher than that in most instances, they do make enough special deals that their net margin is in that range.

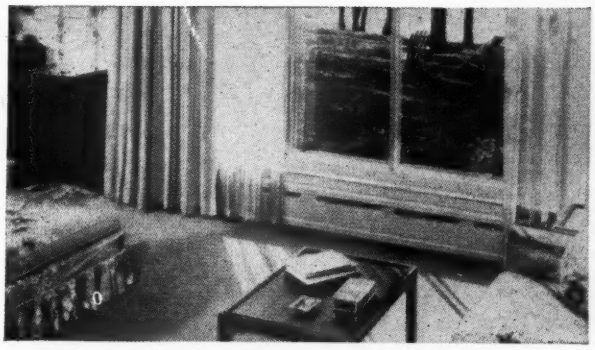
FUELOIL STOCKS: Stocks of distillate fuels at refineries, terminals and in transit East of the Rockies on June 6 were 64,697,000 bbls. compared with 45,678,000 bbls. on the corresponding date of the previous year.

Secondary inventories of distillate fueloils on April 30 were 12,579,000 barrels compared with 12,596,000 on the same day last year. A new check on secondary distillate storage capacity shows 29.4 million barrels.

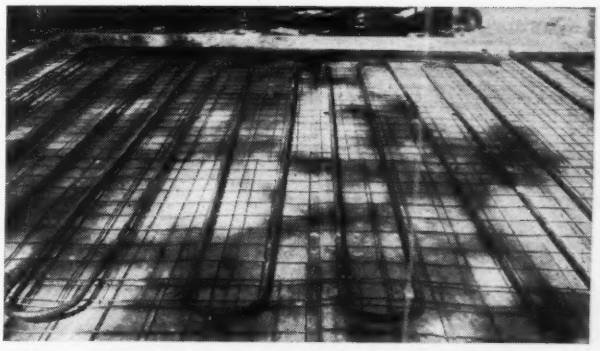
DEALER COMMENTS: Typical comments on questions of the month are these: "In addition to room coolers we have sold five central units this year" . . . "Will there be a special summer price at refinery for summer fillups by distributors who have large storage" (*Not officially nor across the board but supplies are very plentiful and you should be able to negotiate*) . . . "Do you have any figures on the percent of gas permits that are used when given out in the Middle West" (*This varies considerably by cities but from the best advice we can get one-third are not used on the average*) . . . "How do you collect accounts receivable by early summer after the heating season is over" (*This subject is on our editorial schedule for August or September issue*)

HOMES WITH MODERN WINDOWS NEED

B & G *Hydro-Flo** Heating



...WITH BASEBOARD PANELS



...WITH RADIANT FLOOR OR CEILING PANELS

Any hot water heating boiler can be equipped with B & G *Hydro-Flo* units —1. Booster Circulating Pump. 2. Flo-Control Valve. 3. Indirect Water

B & G *Hydro-Flo* Forced Hot Water Heating correctly solves the problem of heating homes with large glass areas. When used with modern baseboard or radiant panels, a curtain of warmth is raised against incoming cold —protecting against icy down-drafts from the windows— keeping floors comfortably warm. Every inch of the home equipped with B & G *Hydro-Flo* Heating is *livable space!*

B & G *Hydro-Flo* Heating furnishes not only a better *quality* of heat, but better *controlled* heat as well... so smoothly modulated that every change in the weather is met with a corresponding change in the heat supply. No overheating fuel waste—no underheating chills!

Add to this a year 'round supply of indirectly-heated domestic hot water—ample for automatic washers, baths and showers—and you have the reason for today's trend to B & G *Hydro-Flo* Heating.

Send for descriptive literature.

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Dept. DA-7, Morton Grove, Illinois

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fueloil & oilheat

Government Influences on Fuels

by
Milburn Petty

WASHINGTON—Congressional committees are studying the recent oil price increases—but there has been no indication yet that they will do anything about the situation.

The expected outcry from consumers has been slow to develop—if it ever does. Mostly, the complaints have come from inside the industry.

Marketers were bitter at the slowness of most suppliers to recognize that distribution costs have risen just like those in the other branches of the industry.

First ray of sunshine was the move by Socony-Vacuum Oil Co. to widen margins of its gasoline jobber-distributors.

But few congressmen are disposed to go to bat for margin increases that might mean still higher prices for consumers.

So, the congressional investigation of oil prices may wither away in the rush of Congress to get away from the summer heat, after hearing a few witnesses from government and industry.

DJ Probe of Oil Prices Urged

Meanwhile, the Department of Justice has been asked by the National Oil Marketers Association to investigate whether the antitrust laws were violated during the oil price increases.

The series of raises, said Paul Hadlick, NOMA's general counsel, writing to the DJ, "indicates clearly that there is collusion among the large oil companies controlling the oil markets."

Hadlick said product stocks were "about the highest in history" and could be added to by simply raising the state proration schedules.

Higher Gas Prices Expected

One consolation for fueloil marketers is that higher prices for natural gas may be in the making.

Pending before the Federal Power Commission now is the Panhandle Eastern Case involving the question of whether or not gas produced by the pipeline companies — subject to the FPC—is entitled to the state-prescribed minimum prices of 11¢ in Oklahoma and 8¢ in Kansas instead of the average of about ½¢ or less allowed by the Commission on the basis of original costs.

Gas industry leaders have been urging that the FPC allow a "fair field price" on the pipelines' own production. Otherwise, there is no incentive for the gas companies to find and develop new reserves on a 6% return on investment.

Meanwhile, some independent producers are prepared to cancel their supply contracts with proposed new pipelines if the Supreme Court should rule—in the Phillips Case—that their sale prices are subject to FPC control.

Ultimately, gas will have to be priced at its intrinsic value or else supplies will not be available for interstate markets, thus curbing gas expansion.

Gas Distribution Bill Backed

Bills to give the states exclusive control over gas distribution within their borders are now getting favorable attention from Congress.

State utilities commissions have taken the lead in seeking this legislation to "repeal" the Supreme Court decision in the East Ohio Gas Case where the FPC was given jurisdiction on grounds that there was a "continuous flow" of gas.

The FPC's present majority has expressed sympathy for objectives of these bills and is working with the state commissions to perfect the bill's wording.

The gas industry wants such legislation but is letting the state and federal agencies carry the ball.

Coal Dies Hard on Import Bill

The coal people are still pressing for legislation to limit imports of residual fueloil to 5% of domestic demand even though they failed to have this provision included in the bill to extend the trade agreements law.

They have concentrated on a new bill that includes this residual quota, plus a 10% overall limit on oil imports (backed by the Independent Petroleum Association of America).

Even though this new bill has little or no chance of passing before adjournment, it will be in a better position for pressuring next session.

This double-barreled quota would mean restriction of residual imports to 20% of what is now coming in.

Russell Brown, IPAA's general counsel, says the recent 25¢ increase in domestic crude oil prices should "lessen" pressure for legislative restrictions on imports. However, the long-range problem still remains to be solved.

Degree-Day "Normals" Issued

The Weather Bureau has compiled a new set of degree-day "normals" based upon the last 30 years instead of the 50-year averages now in use.

Since the earlier years of this century were much colder than more recent years, the overall tendency is toward fewer degree days in the new 30-year "normals." And this trend is accentuated in cities where the weather station is still located in the downtown area and the metropolitan area has greatly expanded.

On the other hand, where the weather stations have been moved from downtown to the airport—or some other cooler spot—some miles out in the country, there may be a considerable increase in degree days for such areas.

Extension of PAD Authorized

The Defense Production Act has been stripped down and extended for two years—but it still provides for the continuance of the Petroleum Administration for Defense.

Joseph A. LeFortune, vice chairman of Warren Petroleum Corp., natural gasoline manufacturer, has succeeded J. Ed Warren, Texas producer, as the head of PAD.

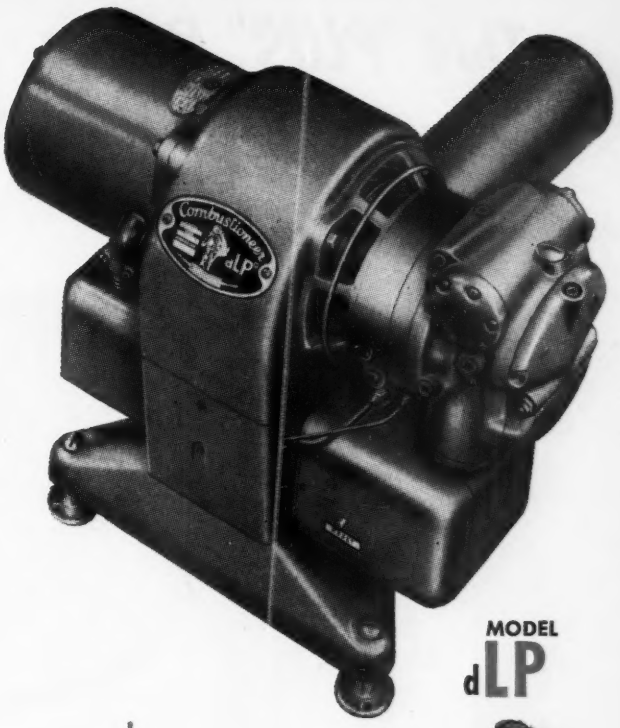
The new law has no provision whatever for price controls—not even on a standby basis.

Priorities and allocations are authorized for the military and atomic energy programs.

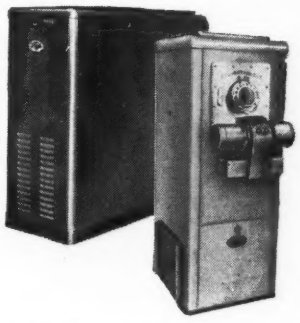
If these two programs should take too big a bite out of the material supply for civilians, the President is authorized to impose a general allocations system—but not otherwise.

Combustioneer®

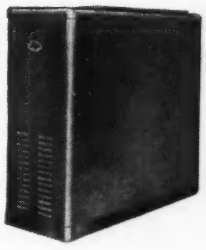
means Quality Performance Economy



MODEL **dLP**

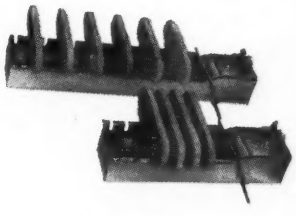


Oil Furnaces



Gas Furnaces

High Pressure Oil Conversion Burner



Humidifiers

Combustioneer is better, because **Combustioneer** is the *ONLY* Low Pressure Oil Burner on which both primary and secondary air and oil capacity adjustments can be made to cover .5 to 4.0 G.P.H. *while the burner is operating!*

ANOTHER Combustioneer EXCLUSIVE

The proven two-stage Hydra-Vated fuel pump with self purging reservoir . . . one pump operates in suction only, the other produces pressure to operate metering piston and shut-off valves. Draws oil vertically up to **15** feet, plus up to **38** feet horizontally, from buried tank, and without extra lift pump.

STRONG NATIONAL ADVERTISING

Combustioneer Dealers get plenty of HELP! Powerful advertisements in national magazines help sell YOUR prospects on the many EXCLUSIVE **Combustioneer** features. You spend less time convincing prospects, more selling to customers.

"Better Heating Since 1928"

DEALER AIDS

Window streamers and complete displays, outdoor identifications, varied direct-mail material, newspaper mats, radio and television scripts, sales and service training. Dealers' local advertising is handled on a coop basis as to cost . . . permitting **Combustioneer** Dealers to do more advertising.

DEALER TERRITORIES OPEN!

Yes, YOU can enjoy ALL the benefits of **Combustioneer** advertising and dealer aids in YOUR community. YOU, too, can make more sales . . . and more profits with **Combustioneer!**

Mail Coupon for Franchise Details!

Combustioneer DIVISION
The Steel Products Engineering Company,
1307 W. Columbia Street, Springfield, Ohio

Please send me complete **Combustioneer** advertising, dealer aids and dealer franchise information. There's NO obligation!

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Combustioneer

Low and High Pressure Oil Burners • Gas Burners • Oil-Gas-Coal Furnaces • Stokers • Humidifiers
Division, The Steel Products Engineering Company, Springfield, Ohio

This "PLUS" Brings Plus Business

The 1953 MODEL NATIONAL PACKET

All-in-one . . . Automatic Heating Unit . . . Oil Fired . . . Factory Assembled . . . Built-in Hot Water Supply

The new Model "K" National Packet is a complete automatic hot water heating unit, including boiler, burner, controls and accessories . . . ready for fast inexpensive installation. Use it in one-bathroom homes, apartment units, motels, service stations, stores or cottages. It heats efficiently and economically with baseboard, radiant panels, convectors, radiators or unit heaters.

USE THESE "PLUS" ADVANTAGES TO CREATE CUSTOMER SATISFACTION!

- **36 inch, "counter high" white enameled cabinet—easily installed in utility room, kitchen or basement**
- **Harmonizes with other home appliances**
- **Exclusive "Raytrol" control provides abundant domestic hot water and assures even warmth in all rooms**
- **"Synchronized-action" of quality components assures engineered efficiency**

It will pay you to investigate the possibilities of the Model K National Packet as a profitable modern business builder.

Write today for catalog No. 626-FO for full information.

THE NATIONAL RADIATOR COMPANY
JOHNSTOWN, PENNSYLVANIA

Marshall asks Expansion instead of oil Restrictions

THE SOLUTION to oversupply, J. Howard Marshall, Signal Oil & Gas Co., told the June meeting of the Pacific Coast District, Division of Production, American Petroleum Institute, is expansion of markets and not legislation to regulate imports. As reported in *The Oil Daily*, Marshall said, "Quotas and legislation look so easy, but they are not practical." First, he continued, nothing can be done without appointing a governmental board and then an instrumentality has been created which the government can use as it sees fit. "Don't forget," he warned, "a board can move quotas and prices in either direction, up or down."

He criticized the independent oil producers for their action in supporting the proposed restrictions on oil imports by saying that if they "get in bed" with John L. Lewis and other coal interests "for the sake of expediency, then we're going down the road to full control over end-use of oil products."

Marshall emphasized that this country must not be made a "dumping ground" for foreign oil and advised the major oil importers not to force the issue. He likened the situation today to that in 1933 when the Disney bill, setting up quotas and regulating prices, almost passed. Now, he contended, independent producers "in their anxiety to get an increased price for crude oil, are clamoring for the Simpson bill."

❖

ICHAM statistical Studies on space Heaters, heating Stoves

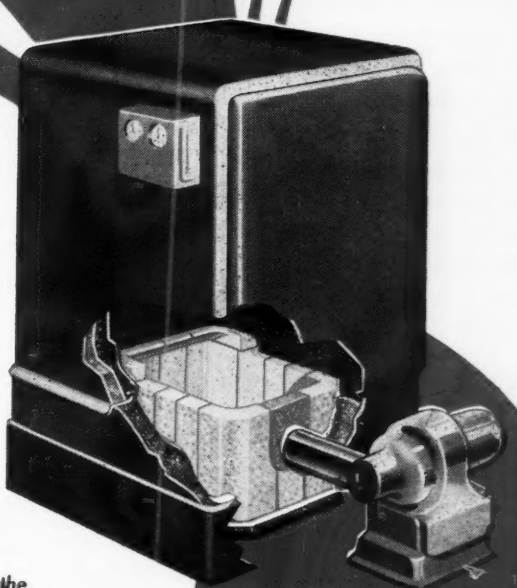
SEVERAL SPECIAL statistical studies have been issued recently by the Institute of Cooking and Heating Appliance Manufacturers, Washington 8, D. C. One of these is a "Survey of manufacturers' Sales of space Heaters by Types of Customers during 1952," tabulated from reports of 61 companies, accounting for shipments of 2,168,839 domestic space heaters last year. The table shows the percentages of shipments made to the indicated types of customers, covering shipments during 1952 of 705,480 oilfired space heaters, estimated to be 96% of total

SAVE ON INSTALLATION TIME

WITH **A. P. GREEN**

Streamlined

COMBUSTION CHAMBERS



Easy to install . . . fewer pieces

Save labor costs. Fewer pieces permit installation in a minimum of time.

Designed for top efficiency

Design conforms to the natural shape of the flame and allows free gas movement . quiet operation.

Adaptable to most sizes

By the addition or removal of a few tile, the STREAMLINED Combustion Chamber can be adapted to practically all types and sizes of domestic boilers and furnaces. Made from high quality Missouri Fire Clays. Will last for years under most severe service conditions. Chambers installed 15 years ago are continuing to give satisfactory service without repairs.

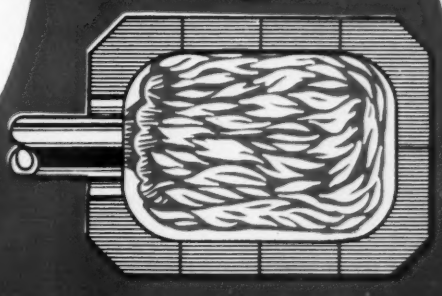
Individually packaged

Each Chamber is packaged in a specially designed carton to give full protection in shipping and storing.

LOOK FOR *Your A. P Green Distributor in the classified section of the telephone directory or write direct for more information on:*

COMBUSTION CHAMBERS • OIL BURNER BAFFLE BRICK • INSULATIONS

HIGH TEMPERATURE MORTARS • CASTABLE REFRACTORIES



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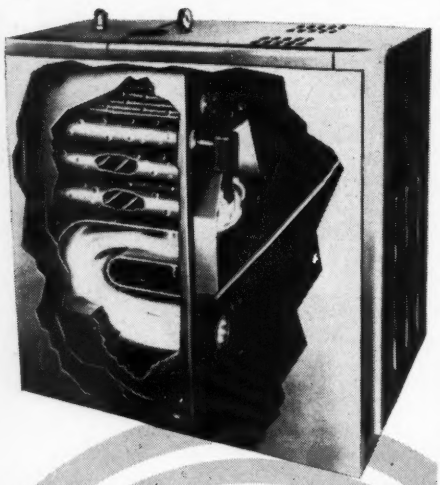
Distributors and Warehouse Stocks in the Principal Cities of the World

THE NEW YORKER
HORIZONTAL BOILER
...offers you top efficiency and economy!



The NEW YORKER horizontal tube boiler provides top heating efficiency because of its scientific "three-pass" design, offering maximum heat transfer and lowest stack temperature. All heat passages are surrounded by heat-absorbing surfaces. Beautifully jacketed in blue-and-gray hammertone finish.

- Oversize, large capacity tankless water heater.
- Fire-tubes of extra heavy gauge steel.
- Pre-cast combustion chamber withstands temperatures up to 3200° F.
- Fire-tubes easily accessible.

Send coupon NOW!

New Yorker Steel Boiler Co., Inc.
Colmar, Penna.

Gentlemen:
Please rush me full information and prices on the New Yorker horizontal tube boiler!

Name .....

Street .....

City ..... **State** .....

Type of Business .....

industry; 1,235,151 gasfired units, 72% of industry and 228,208 coalfired units, 53% of industry.

Manufacturers' Sales of Space Heaters During 1952

	PERCENT		
Type of Customers:	*Oil**	*Gas*	*Solid Fuel*
Dist. of Jobbers	54.7	66.8	56.2
Mail Order Houses	7.6	7.9	12.4
Hardware Stores	6.6	4.5	6.2
Furniture Stores	7.7	3.8	22.5
Appliance Stores	3.8	2.3	0.5
Department Stores	1.8	1.1	1.2
Automotive Stores	1.5	1.7	..
LP Gas Distributors	0.1	7.7	..
Plbg. & Htg. Contr.	0.4	1.1	..
Public Utilities	..	1.9	..
Retail Fuel Dealers	0.5	0.1	..
Exports	4.0	0.5	..
Government Agencies	0.5	0.1	0.1
Others (incl. Trailer Mfrs.)	10.8	0.5	0.9
	100.0	100.0	100.0

*Not including portable unvented types.

A second study by the Institute examined the total shipments of domestic heating stoves as issued by the Bureau of the Census since 1946, and converted the value of these shipments to an average unit price. Gas units increased in average from $12.87 in 1946 to $18.82 at the end of 1952. Oil units jumped similarly from $36.50 in 1946 to $52.05 in 1952, while coal and wood heating stoves remained virtually the same—$24.66 in 1946, $24.54 in 1952. The Institute explains, though, that the average prices are significant because they reflect the increased sales of larger models, especially in the gas and oil heater fields.

As an estimate, the Institute figures that average unit prices for heating stoves at the end of the first three months of this year had increased to: Gas, $22.56; Oil, $52.73 and Coal and wood, $26.55.

Another report from INCHAM covered pot-type oilburning equipment. The table reproduces the shipments of such units for March 1953, compared with March a year and carries totals for the first three months of both years. Shipments of all types of oilfired pot-type equipment are up 14% in the first three months of 1953, while specific types of equipment show these changes: Space heaters, up 20%; water heaters, down 4%; floor furnaces, down 35%; wall furnaces, up 15%; gravity central heating units, down 25%; forced air units, down 36%.

❖

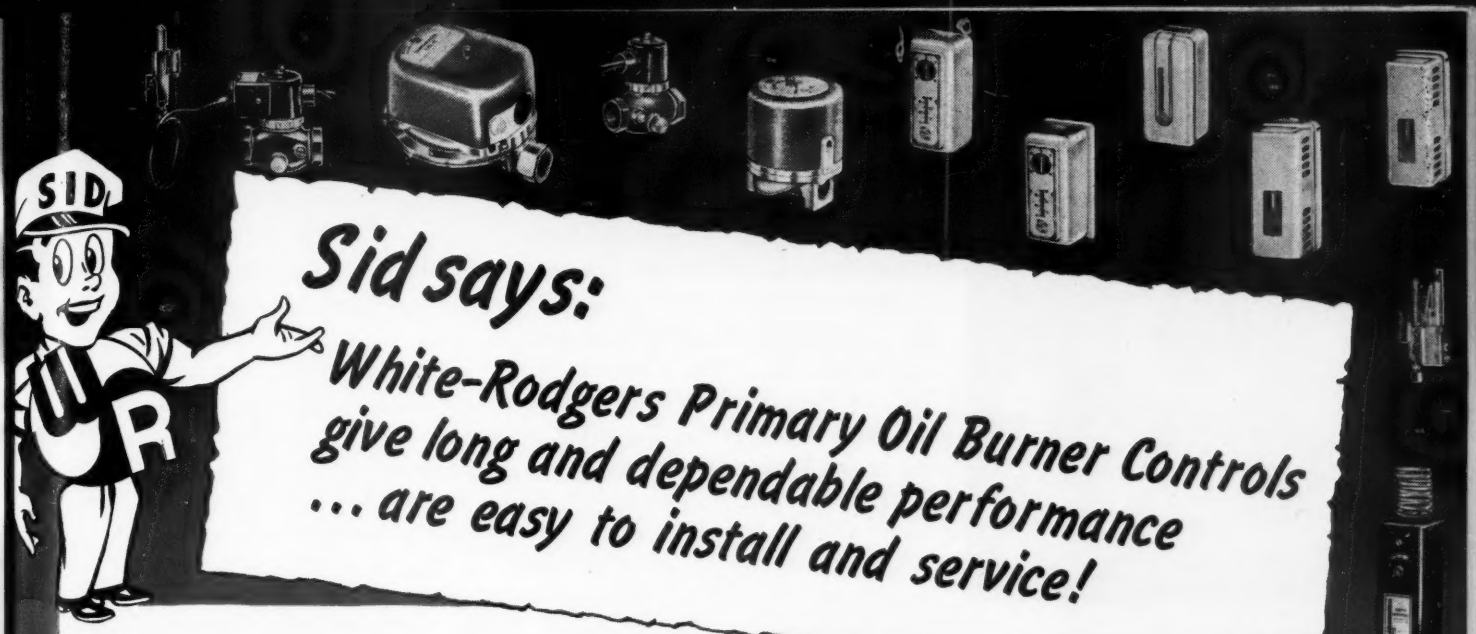
ASHVE finds more heat loss at low relative Humidity

INACTIVE MEN are equally comfortable at either 30% or 80% relative humidity in temperatures from 72° to 76° F. and their skin temperatures are higher at 80% relative humidity than at 30%. Also, compared with woman in similar

Shipments of Vaporizing Pot Type Oilburning Equipment

	March 1953	*March 1952*	*First Quarter 1953*	*First Quarter 1952*
SPACE HEATERS				
Circulators:				
Less than 31,000 Btu*	7,240	6,978	19,224	18,181
31,000 to 40,000	1,033	1,280	2,635	3,229
41,000 to 52,000	8,569	9,881	26,570	31,241
Over 52,000	14,683	17,980	37,736	38,942
Radiant Circulators:				
Less than 41,000 Btu	2,416	3,420	10,938	8,987
41,000 to 52,000	8,979	733	25,632	1,285
Over 52,000	106	491	780	1,070
Radiants: #				
Less than 41,000 Btu / Over 41,000	303	325	1,514	932
WATER HEATERS				
20 gals. or less	143	231	550	550
21 to 30 gals.	804	967	2,562	2,770
31 to 45 gals. / Over 45 gals.	298	89	439	327
FLOOR FURNACES	1,318	2,521	4,796	7,389
WALL FURNACES	981	820	2,099	1,826
CENTRAL HEATING PLANTS				
Gravity air flow	150	276	660	884
Forced air:				
Less than 75,000 Btu	400	437	1,062	2,308
Over 75,000	283	1,113	1,317	1,391
	47,706	47,549	138,514	121,361

* Incl. trailer stoves. # Less casings.



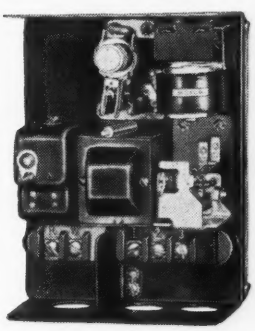
Sid says:

White-Rodgers Primary Oil Burner Controls give long and dependable performance ... are easy to install and service!

The attractive White-Rodgers Primary Oil Burner Control, showing trip-free reset-lever.

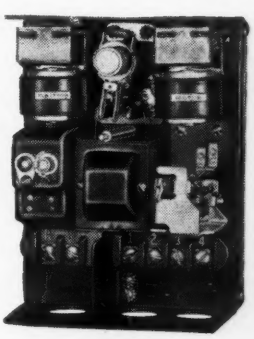
Cover Removed —

When the cover is removed from this White-Rodgers Primary Oil Burner Control, the convenient terminal and conduit location, the simplified wiring requirements and the ample wiring space all make for quick flexible installation.



Open view of Constant Ignition Primary Oil Burner Control, showing ample wiring space and convenient terminal locations.

Type 611 Constant Ignition



Open view of Intermittent Ignition Primary Oil Burner Control showing easy to reach ignition timing knob.

Type 610 Intermittent Ignition

Rotary-Clutch Combustion Switch —

Service features include the improved rotary-type friction-slip clutch with visible combustion switch. The helical-type bimetallic element with its large exposed surface area assures quick response to changes in stack temperatures . . . protected by heavy-duty guard.

Pre-determined Timings —

Ignition and scavenger timings are determined within the control and are not affected by installation variations. An assured scavenger timing of approximately one minute follows each burner cycle. Ignition timing on Intermittent type can be adjusted to meet unusual installation conditions.

Trip-free Safety Reset —

These White-Rodgers Controls recycle on flame failure, but lock out on safety if the condition persists after one recycle. The simplified trip-free safety reset permits user to resume operation, but prevents locking the control in an unsafe position.

Rugged Construction —

The rugged over-all construction prevents possible jars and jolts from affecting its operation. Ruggedly constructed relays, with heavy silver contacts. White-Rodgers Oil Burner Controls operate from a 2-wire thermostat . . . simplified wiring . . . easier installation.

Let SID help you!

Fill in and mail the coupon below TODAY!
It will bring you a continuous series of service bulletins helpful to you in making your installations.

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U R Controls FOR REFRIGERATION HEATING AND AIR CONDITIONING

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Gentlemen: Please send me your information bulletins.

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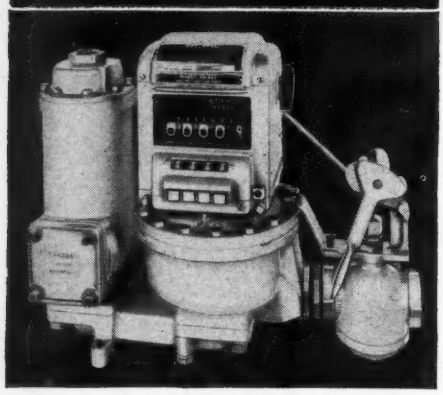

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This compact Red Seal Meter for petroleum products is designed for truck tank fueling service. The *Auto-Stop* provides automatic deliveries. The *Print-O-Meter* prints receipt showing before and after readings; ticket is locked in the register to prevent fraud. With all accessories and meter combined in one unit, it is ideal for truck tanks, saves payload space and weight...combines accuracy, simplicity and flexibility.

WELCOME THE R & M MAN
You can be sure of satisfaction with R & M equipment. Our men know the best for every marketing need. Rely on R & M men to help you keep plant and truck operating costs at a minimum.
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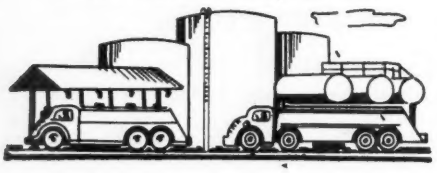
Complete Equipment for the Oil Trade



environments, men have higher skin temperatures and greater heat losses by evaporation.

These are some of the observations of a research study, "Effect of relative Humidity on heat Loss of Men exposed to Environments of 80°, 76° and 72° F.," which was made public at the semi-annual meeting of The American Society of Heating and Ventilating Engineers held in Denver. The object of the research was to re-examine the effects of environments with widely different relative humidities on the partition of heat loss of uniformly and lightly clad men and on their subjective sensations of thermal comfort.

Ten healthy young men were studied over a period of three hours each in each of three environments, 80°, 76° or 72° F. and 30% or 80% relative humidity; eight women were studied in environments maintained at the same temperatures, 30% relative humidity.

Reprint Booklet covers com.-industrial Oilburning

A BOOKLET, "Commercial-Industrial Oilburning," has been announced by FUELOIL & OIL HEAT. It contains a series of articles on the subject that have appeared in the magazine, including the twelve features by Kalman Steiner on the "Design of the industrial Installation."

This series begins with a brief "Introduction to industrial Oilburning" and then discusses in succession: Computing boiler load and selecting burner size, combustion volume, boiler types and firebox construction, water tube boilers, selection of burner and accessory equipment, boiler settings, function and operation of primary controls, other controls, function and application of fueloil preheaters.

Content of the booklet is rounded out with several Short Shorts on burner service that apply to commercial and industrial installations.

The 80-page booklet is available with self-cover, 8½ x 11 page size, profusely illustrated with photographs, charts and diagrams. Published by Heating Publishers, Inc., 2 West 45th St., New York 36, N. Y. Price: $2.00.

Letters

STANDARD OIL COMPANY (INDIANA)
Chicago 80, Ill.

Editor:

We have been checking the 1950 Census figures for domestic central heating using fueloil against those published in FUELOIL & OIL HEAT by state and by total U. S. Some of the resulting large differences cannot be explained by us and we are writing for possible further clarification as we may be overlooking something.

The 1950 Census lists 42,520,000 occupied dwelling units for the U. S. in 1950, of which 4,678,000 report central heating by fueloil. Looking at the definition given in the Census of dwelling units and structures it is apparent that one oilburner serves more than one dwelling unit on the average. The number of oilburners in use at the beginning of 1950 as reported in FUELOIL & OIL HEAT, is given as 4,490,535 and the average during the year as 4,831,300. It looks as though you have a considerably higher number of burners in use than did the Census.

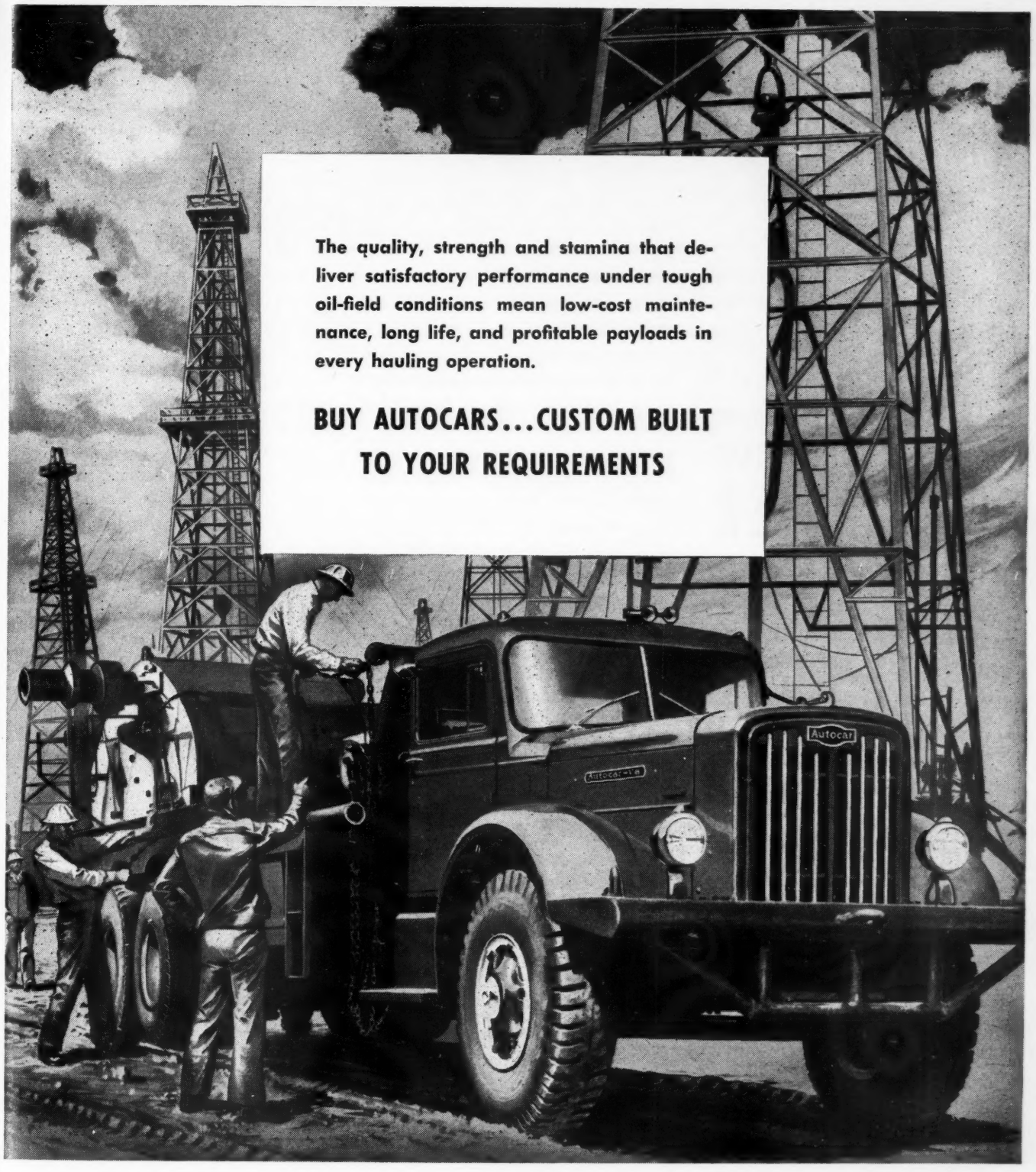
JOHN W. BOATWRIGHT
General Manager,
Distribution Economics Dept.

Editor's reply:

Where the Census lists occupied dwelling units, those with central heating include, of course, both residences and apartment buildings. If you reduce this by 11% or 12%, you will have a figure that represents one and two family homes. They show as you mentioned 4,678,000 oilheated dwelling units. If we reduce this 12% they would be showing 4,117,000 individual homes.

I believe you know that the Census was substantially completed in the month of April of 1950. In a normal year the period from January 1 to April 15 accounts for 15.7% of the year's installations. About 10% of these would be replacements, so the net increase in number of users during that three and a half months would be 14.1%. If we add that to our January 1, 1950 figure, our estimate would be around 5,123, 700 to compare with the Census figure of 4,117,000.

There is one major difference. What



The quality, strength and stamina that deliver satisfactory performance under tough oil-field conditions mean low-cost maintenance, long life, and profitable payloads in every hauling operation.

BUY AUTOCARS...CUSTOM BUILT TO YOUR REQUIREMENTS

AUTOCAR TRUCKS

The Autocar Company, Ardmore, Pa.

Established 1897

Factory Branches and Distributors from Coast to Coast in the United States and Canada

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Drexel Building, Philadelphia 6, Pa., U.S.A.

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The Autocar Company, Ardmore, Pa.

Please send me more information about Autocars custom-built to my needs.

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STOP
LEAKY BAGS and BLOW-OUTS

Get the NEW
SOOTMASTER
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CLEANS FASTER—No bag to empty, shake or clean.
Soot is emptied from container into throw-away bag.
Easy to carry—weighs only 30 lbs.
Complete with 10 ft. hose, 27 in. cleaning tool, 10 throw-away bags and quick-release tie-cord.

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• Write today for literature
• Jobbers' inquiries invited

MASTER-CRAFT
SUPPLY CO., INC.
HAVERSTRAW, NEW YORK

Originators and Manufacturers of
THROW-AWAY FILTER BAGS
for Commercial Vacuum Cleaners

we call domestic oilburners includes small apartment and commercial applications if they use the typical domestic type oilburner and burn No. 2 oil. This is logical, of course, because no fueloil marketer makes a separation either in his books or his thinking between customers of those two types. The equipment manufacturer never knows what application will be made of his burner when he ships it, so we are really talking about domestic plus small commercial.

At present 9.5% of these customers are of the commercial and small apartment type. Then we will know that some of these domestic oilburners are used in agricultural and miscellaneous industrial applications, so it would be safe to say that 10% of them are other than residential. When we remove this 10% from our figure of 5,123,700 we arrive at 4,611,300 as our concept of strictly residential oilfired central heating at the time the Census was made.

Census Figure Low

Thus the Census is still 10.7% below us. I am inclined to believe that we are more nearly right. There is little chance for error in taking the Census as to the type of fuel used to heat the home, but there could be a lot of error in the type of heating equipment in which it is burned.

You know that the Census taker is a local person picked up in the village or neighborhood and employed for just the few weeks that this job requires. It is usually a woman who certainly has no idea of heating terms. I believe that a woman would have difficulty in learning from a housewife just what was central heating and what would be space heating. In fact I would have the same trouble unless I actually went and looked at the stove.

Our definition of central heating includes boilers and furnaces whether they are in the basement or in a utility room on the first floor. It does not include floor furnaces nor wall furnaces. It does not include space heaters even though they may be of the circulating type that heats the whole house.

It seems to me that Coumbe, at Bureau of Mines, checks with us rather well. As I look back to our January 1951 issue and calculate on page 65 that during the year 1950 the average consumption of distillate central heating fuels was 44.1 bbls., I feel that we're getting somewhere in the light of B of M data. This average covered both residential and small commercial heating uses. If we multiply that by our 5,123,700 users as of April 15th that year, we find a total demand of 225,955,000 bbls.

Look up the Coumbe report, and you will find that he shows for that year 220,947,000 bbls. That is a variation from our figures of only 2.2%.

My feeling is that the Census people in working with many implications, many industries and many commodities would have difficulty in being able to understand and evaluate a specific industry like fueloil as accurately as we should be able to do it living with it every day.

❖

QUINCY, MASS.

Editor:

Having worked in all phases of the fueloil business, I got a great deal of pleasure out of your January issue with all its statistics. The ones that interested me the most pertain to service operations. This business of making or losing money on service, is a matter of great controversy, both pro and con.

The public has been educated to expect and demand, in many instances, almost the same type of "free" service they are accustomed to at the neighborhood filling station. As we all know, this "Great Giveaway" started back in the days when fueloil was considered a "glut" on the market and was at one time dumped wherever the drainage was suitable to carry it away. The public in those days were the real "pioneers" by letting us install in their homes at good prices some of the "monstrosities" we called oilburners. I doubt if we ever will be able to overcome this original indoctrination entirely and especially now that oil heat is no longer a "luxury," but almost a utility and is in competition with utilities.

I can remember when most calls to the rear door brought forth the butler or maid, but now we are dealing with "Plain Joe," who also works on an hourly rate, and any charges over and

No smoky starts...

time delayed

for proper fuel-air ratio

General Controls

K-28

Magnetic

Stop Valves

General Controls' K-28 magnetic stop valve allows the oil-burner motor to reach full operating speed before admitting fuel to the nozzle. With air and fuel pressure at full volume the valve opens, reducing smoky starts and eliminating carbon deposit on electrodes or nozzle. Positive plunger action closes the K-28 valve instantly when motor circuit is broken, thus preventing oil dribble. Operating in any position, compact, and economical, General Controls' K-28 Time Delay Oil Valve is the ideal automatic control for domestic oil-burner applications. Keep one of these colorful display cartons on your counter for extra profit when servicing oil heating equipment this fall.

GENERAL CONTROLS

Glendale, California • Skokie, Illinois

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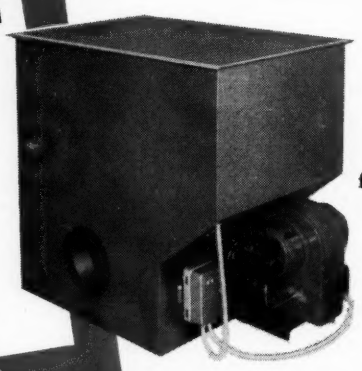
FLOOR FURNACES



All KLEER-KLEEN Pressure Burner Floor Furnaces are **Listed and Labeled by Underwriters' Laboratories, Inc.** — an added measure of safety and protection!

Now . . . 4 Floor Furnaces with PRESSURE BURNERS for Medium and Larger Sized Homes—70,350 and 83,000 Btu/hr heat output.

These modern KLEER-KLEEN Pressure Burner Floor Furnaces outperform many of the larger, more expensive heating units now on the market.

KLEER-KLEEN MANUFACTURING COMPANY
140 ORCHARD AVENUE HAYWARD, CALIFORNIA

above his fuel bills are a definite challenge to an already over-strained budget.

I do not advocate free service, but, if the oil companies both large and small realized that service, prompt, courteous and efficient, is their main defense against the invasion of other fuels, they would not treat the Service Department as a necessary evil. There are many of these companies who think nothing of giving all kinds of discounts and commissions, but either cry about, or try to make real money on the service department.

If the oil commissions and discounts were allotted to the service department; also the "write-offs" which are really sales or operating expenses there would not be a losing service department. Service, on any kind of mechanical equipment, is usually a "necessary evil," but no one can deny the fact that it is "necessary."

Any business that requires skilled manpower, on a 24 hour basis is important, very important, both to the public and the company.

The knowledge required to service our present day equipment, both light and heavy oil, with electronics becoming a phase in controlling devices, plus the "dirty" work, irregular hours, and all the other requirements (as listed in "Appreciate the Serviceman"—March 1952) requires men of high calibre. They should be treated and paid to match their importance and intelligence, and not be classed as boiler cleaners.

While in this vein, it continually amazes me how some of our "Design Engineers" can expect any recommendations on their equipment from the men who have to struggle with it in the field under adverse conditions and still try to keep both the consumer and company costs down.

Servicemen's Complaints

Units where the flame is invisible (all you can tell is that the glow in the air intake shows it is running); burners where you take all the skin off your knuckles trying to hook up the high tension leads or remove the gun assembly; jacketed units where it is almost impossible to either oil or remove the motor, the pump or transformer, replace or adjust controls; burners where, if the motor has to be removed, it cannot be realigned without special tools; units where it is almost impossible to properly clean the flue travels, or are so restricted you have to sacrifice efficiency to cure pulsation. I could go on—!

I do not believe this equipment is helping the oil industry. The people who are "soured" on oilheating, and the disgruntled servicemen who have left the industry for many reasons, are sure to have some bearing on the progress of gasheating.

After all, total heating costs include not only fuel, but service, parts and depreciation. It is not enough to say that one fuel has more Btu's than another.

I have serviced thousands of units of all types, and do not believe I could honestly recommend more than a dozen by brand name. I have talked with many servicemen and in spite of the fact that many are prejudiced on certain types, most agree in general.

So in spite of the new equipment market, I still think it is the old and satisfied customers who are our best advertisement for oil, plus the servicemen who are "sold" on oilheating. (Mrs. Fowler—February issue, included.)

In many communities equipment is sold over the counter and installed by anyone who can use a wrench. These contractors rarely care what happens once it is in and paid for.

Then the oil company serviceman is called in to make a "silk purse out of a sow's ear"—at little or no cost to the customer. I ought to get a soap box.

WILLIAM C. ROBBINS

❖

Harold W. Shirey has been appointed by Steel Products Engineering Co., Springfield, Ohio, as manager of its Combustioneer Division. Shirey succeeds Georges Roudanez. Joining Steel Products in 1951, Shirey worked as project engineer in radar developments for other manufacturers.

Strategic Selling will Beat Gas

Merchandising Effort essential for meeting competitive fuel Threat

by
Lansing Horst

FUELOIL DEALERS AND oilheating men in the Metropolitan area of New York City are now in the initial throes of what appears to be a long range competitive struggle with natural gas. For about a year or more the changeover from manufactured to natural gas has been taking place. It is pretty well completed and the major gas utility in the Brooklyn-Queens area is beginning to lay down a barrage of high pressure promotion and advertising including every possible modern method of reaching the public and molding its opinion.

Since the early 30's the Brooklyn-Queens area of New York City has been lush oilheating territory and up until recently about the only fuel extensively used in new homes was oil. Conversions took place a a terrific pace, too, and New York City as a prime oilheating market grew by leaps and bounds. Of course, the competition was rough, perhaps rougher than in any other part of the country, but there was no question as to whether oilheating stood. It was on top, fully accepted by the public, well thought of, and constantly growing.

All this means is that the only competition oil faced was internal competition and even though it was rugged, all the teams were in the same league. Nothing mirrors the growth resulting from this situation more aptly than the simple fact that there are over 300 competing fueloil and oilheating dealers in the borough of Queens alone which has a population of about one and a half million people. During the month of April over 6,600 oilburner permits were issued in the Brooklyn-Queens area, a fair example of the size of the market.

Now the situation is changing with the big promotional guns of the local gas utility booming all over the place. The problem is a bit different now, more serious but not critical. It has changed suddenly from a phase of just year after year of dealer tactical efforts, to one that now requires an industry-wide strategic effort.

No longer is oilheating in the New York area going to concern itself mainly with the competitive tactics of one oilheating dealer against the other, but now must devote its efforts to the strategic problem of oilheating versus gas heating.

Now, every gas burner installed means one less oilheating installation. This can be a considerable dent in the volume of oilheating installations as the gas utility company in the Brooklyn-Queens area is shooting for 50,000 installations in the next five years and right now it appears that the goal of 10,000 gas burner installations for this year will actually be exceeded. In order to spur this campaign which is already underway, the gas company will spend about $100,000 for direct advertising and promotion and another $25,000 on a dealer cooperative program. About 78 salesmen will comb the area selling gas equipment.

Arrayed against this are hundreds of oilheating dealers and fueloil distributors whose gallonages range from hundreds of thousands to 50 million per year, with a background of specialty selling experience going back for over a quarter of a century. This latter fact is one of oilheating's greatest assets—a vast amount of aggressive selling know-how that has produced in New York City one of the most concentrated oilheating markets in the country.

However, specialty selling experience will not be enough, for the heating industry is now in a transition period from personal sales effort to public merchandising. The job is moving in a great part from the individual

Figure 1. **Fueloil trucks** *represent a large capital investment that must be protected by vigorously combatting the inroads of gas competition. Frank DeFrancesco and John Oswald, (L to R), fueloil truck drivers, realize how important it is to keep the customer sold on oilheating by means of efficient, pleasant, careful and courteous service.*

company effort to industrywise merchandising effort. The story of oilheating benefits must be told to the public and its superiority over other forms of heating has to be emphasized. Then personal specialty selling can take over. But now the sales job is so big that merchandising must be done on a vast scale and not by a handful of successful dealers as has been the case in the past.

One well known fueloil distributor and oilheating dealer in the region under discussion who is meeting the expanding gas competition successfully, is Baerenklau & Company, Inc., an outfit that has had a long experience in all phases of automatic oilheating. Baerenklau handles General Electric and Winkler equipment.

Baerenklau, whose history goes back 55 years when August Baerenklau founded the company, has felt the pressure of gas competition during the past three months. It started when the gas company offered $50.00 for any old oilburner taken out and a guarantee that the oilburner would be reinstalled at the end of the year if the customer was not satisfied.

As soon as this $50.00 offer was introduced via a newspaper advertising campaign, the Baerenklau Company called in all its servicemen and truck drivers and explained the competitive situation to them with all its implications. The men were told that gas would strike at their livelihood by affecting their incomes. They were advised to talk to all the homeowners they met to see if gas was being considered. If it was, they were to notify the office immediately and a salesman would be dispatched to resell the consumer on oilheating, not necessarily oilheating equipment unless it was actually needed.

Baerenklau felt they were in an extremely vulnerable position and that such prompt action was necessary. Out of 4,800 accounts, 1,000 were high-speed vertical rotary ABC burners, over 10 years old, that had gas pilots for ignition. As the gas company had to change these pilots over to natural gas they had an inside track on selling the homeowners on new gas burners to replace the old vertical rotary ABC's that were still doing a good job. This situation had to be watched closely by Baerenklau and it was. As a result only 4 or 5 of the 1,000 ABC accounts were replaced by new gas burners even in face of the fifty dollar offer and the replacement guarantee made by the gas company. Add to this the fact that Baerenklau has never given free service and the selling job that was done is quite evident.

A sort of "reverse English" reaction took place with a number of these vertical rotaries with their gas pilots. The cost of operating the pilot about doubled with natural gas and a howl went up from the irate consumers. The fueloil company was equal to the emergency and promptly sold the unhappy gas-bill-waving customers new gun type burners with electric ignition. This proved to be a good selling point and was vigorously used.

This is even more impressive than it first appears as Baerenklau's low pressure gun burner installations run 50% to 100% higher in first cost than gas burner installations. Servicemen and truck drivers get a commission of 2% of the retail price on all such leads furnished by them. The men take a great pride in saving accounts from gas.

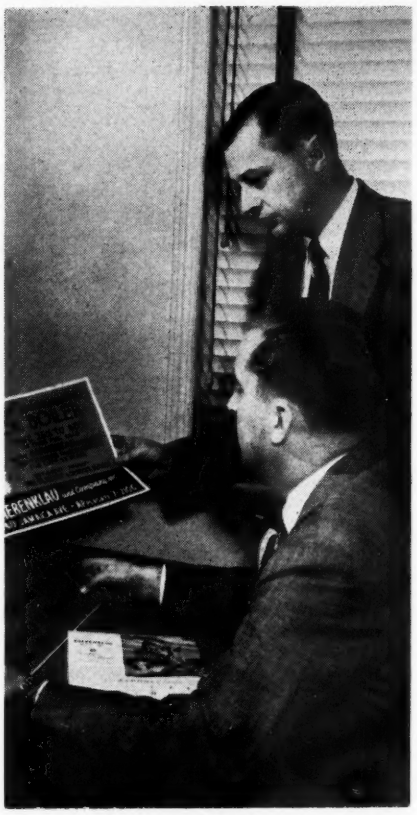
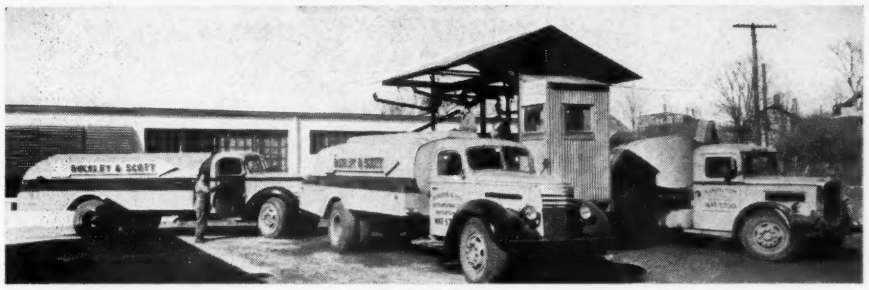


Figure 2. **Frank and Eddie,** *(standing), Baerenklau, Sales and Service Managers respectively, map their advertising and promotion campaign, emphasizing that oilheat is "low cost, modern heating." Fuel savings and prompt service are stressed in the promotion, as well as the company's background of over half a century in the oilheating business.*

Figure 3. **Harold May, dispatcher,** *looks over the file of service records. This file represents nearly five thousand oil consumers that are being kept sold on oilheating by prompt, capable, paid service. Baerenklau and Company, Inc. in its long history has never given free service.*

Eighty percent of Baerenklau's new installations are General Electric units and the remaining 20% conversion burners. The company services about 4,800 accounts and 3,600 of them are under the $29.95 service and parts contract which just about includes everything from the thermostat to the oil tank. There is an automatic renewal clause in the contracts and the renewal rate is about 98%. In addition last month an extra 160 contracts were sold. As mentioned above the outfit has never given free service and charges $3.75 for the 1st hour and $3.00 for each additional hour for service furnished to oil accounts without contract.

(*Please turn to page* 143)



Two Ways To Grow

Higher Volume is fine, but adequate Profits are better

IN THE EARLY YEARS of the oilheating industry not many issues of the magazine went to press without some item about the activities of Buckley & Scott, pioneer Boston oilburner dealers who appear to have installed the first automatic oilheating job in New England around 1921. Aggressive, imaginative merchandisers they were one of the few companies who set the pattern for introducing and popularizing the facility that has become the great oilheating industry of today.

From selling oilburners only they went into burner service, then with the years into fueloil, complete heating systems and more recently airconditioning. This metamorphosis was the topic of the early day articles.

In the intervening years they grew big, prosperous and in need of not much. Al Buckley and Jack Scott divided the early partnership, with Buckley taking the Providence operation and Scott the Boston, with each new company retaining the Buckley & Scott name. This story has to do with the Boston company, Jack Scott and his son Tom who run it. It is principally a story of making money by saving it, yet still conducting a blue chip operation.

Today the company's big business is in fueloil, serving some 10,800 customers with 22 million gallons of No. 2 oil. Less than half of this volume is sold in the Buckley & Scott name, but all of it is handled through the one office. In other words, Scott owns either outright or a controlling interest in ten other fueloil distributors in the metropolitan area.

These companies retain their original names, do their own selling and delivering, but the central office arranges their sources of supply and handles all the housekeeping. This includes credits, collections, degree-day operation and dispatching, engineering assistance when needed and general management advice at all times. The ten affiliated companies are never publicized as such since it is desirable that they retain their local community flavor. Moreover, not many industry people around Boston know who they all are.

Perhaps the great advantage in acquiring these companies lies in the large buying power for fueloil. An account that important gets what it needs at the right price. Also less office personnel is needed with the concentrated facilities.

However, the basis for this present story is the move that the company made in January of this year, and what came of it. After an early start in the city of Boston it was apparent that the right location for a company wanting to expand would be in a centrally located suburb. Watertown was selected as being the geographic center of the greater Boston marketing area. A substantial property was bought on Arsenal St., a main stem. Here were office building, including sales, service and warehouse, and a set of loading racks with underground storage.

Through the years this property increased in value considerably until it became almost a retail location. The company also owned a garage building on a back street . . . only three blocks away but much farther away in property values.

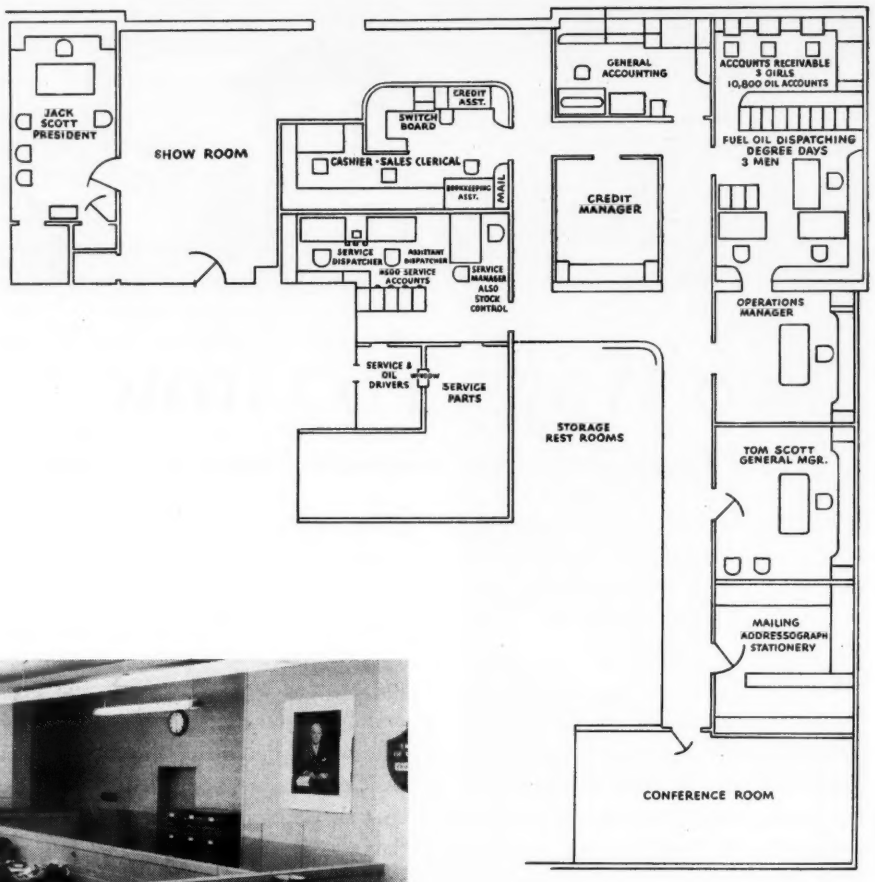
As long as the company was feeling "retail," that is to say while its interests were in the single operation, it was logical to stay in a retail spot. But after buying the other ten companies the interests became more wholesale, and Arsenal Street values lost their appeal.

The upshot of it was that the company brought in a good architect and had him work over the garage building to provide a very modern and attractive office using 5,000 sq. ft. of the front of that building.

Jack Scott, *president, and* **Tom Scott,** *general manager, Buckley & Scott.*

One impelling reason for the move came with an opportunity to lease the Arsenal St. space to Kelvinator at $11,000 a year. Then there are some other economies in having an office built from scratch to handle today's volume, as compared to the old office arrangement that had been added to hither and yon and grew like Topsy. For example, phone bills are reduced $50 a month. Then with every convenience the present staff can handle some future growth. Having the garage and machine shop in direct touch with management saves a lot of chasing back and forth. In all, Tom Scott sees a $15,000 a year saving in the new setup.

But most interesting is the way they visualize the fruits of such a saving. For all practical purposes it's the same as adding another three-quarter million gallons of sales. New England margins at the turn of the year were around 3.3¢ in large cities. Primary costs such as delivery and bulk plant expense were around 1.3¢, leaving two cents to play with for sales, overhead, taxes, profits and the like. All of your profit possibilities are within this two cents, so a $15,000 annual saving would represent this two cents on 750,000 gallons.

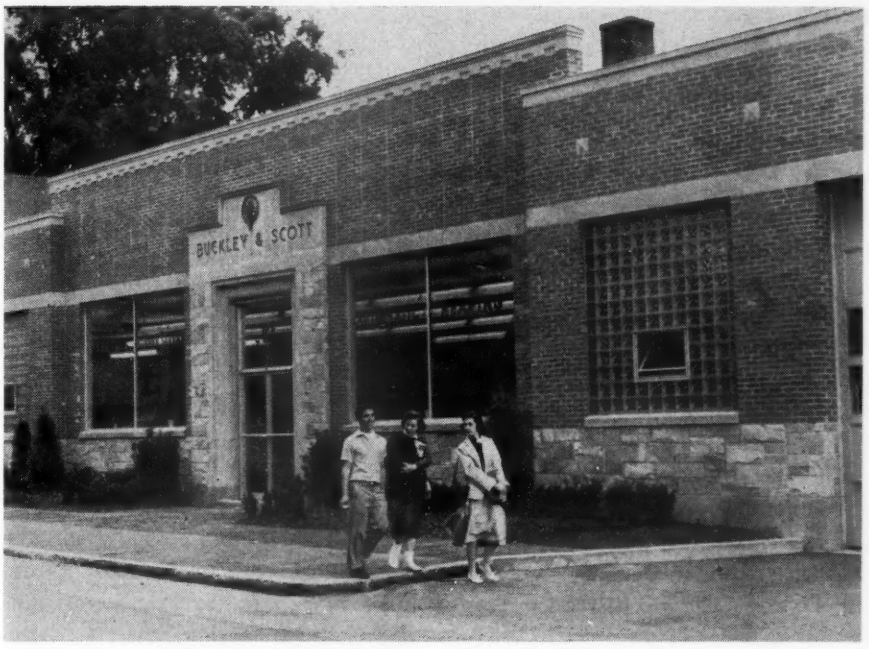


The new office *has acoustical partitions with glass screens above. The floor plan in upper corner of the page shows how the work load is distributed.*

Not only that, but the $15,000 also provides capital to carry accounts receivable on another half million gallons of annual sales, and notice that this becomes cumulative year after year.

In discussing the company's sales growth, apart from buying more small companies, the Scotts have a goal of increasing their number of fueloil customers six per cent a year. You can't discuss this intelligently in gallonage growth, for the East has had five mild winters in a row, but if you keep raising your customer list you'll do all right.

To end the year with 6% more cus-



tomers means selling an extra 10% because the losses will run around 4%. By its bookkeeping methods the company loses 6% of customers a year but these include every family that moves away from a house. If, as often happens, the family can be sold at its new location, that is counted as a new customer. This makes sense because any family coming to a new neighborhood is besieged by a lot of competitive salesmen, and the Buckley & Scott man has to do a job to hold him.

We agreed that these situations represent around 2% of customers that had been called losses, so net losses are about 4%. Orderly growth is easier to handle from a management and capital viewpoint than if a company goes hog wild one year and then has to coast a while until its capital catches up with it. Much of Buckley & Scott's growth is coming through its service department which it promotes widely with appealing service plans (see March issue story "Comfort Insurance Sells"). Many of its annual 300 oil-heating sales also had their start in the service department. These sales are at B&S only and are mostly Electrol and Winkler, while the 10 subsidiary companies handle quite a variety of burner brands.

A floor plan of the new office shows how the activities have been streamlined in a long L-shape from the conference room at the rear to Jack's very attractive office at the other end. As you sit in this office discussing with Jack and Tom the ramifications of this move, the economics behind it, the capital considerations for growth, you can't escape the feeling that this organization is too big, too deep rooted in the wealth of New England oil to be that much concerned over $15,000. Then the answer comes to you . . . that's how they got that way.

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Survey buying Intentions of Montana farm Families

BUYING INTENTIONS of Montana's farm and ranch families in 1953 were surveyed recently by the *Montana Farmer-Stockman,* Great Falls, Mont. Among representative items included in the questionnaire sent to a cross-section of the 35,085 families in the area were furnaces and room heaters.

During 1953 the survey developed that 1,930 farm families in Montana and northern Wyoming intend to purchase a coal or wood furnace; 2,421 said they would install an oil or gas furnace; 281 reported they will buy a coal stoker and 947 are in the market for a room heater.

Another portion of the study surveyed the purchase of petroleum products. The farm families reported that during 1953 6,877 of them would purchase kerosene, 78.9 gals. average per family and 17,648 would buy stove oil, 732.1 gals. average.

In tabulating questionnaires returned in this survey, the families were grouped into five farm-size classifications, with results from each group weighted into state totals to give each size group the same weights revealed for these groups in the 1950 Census.

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Consolidated market Survey indicates fuel Preferences

THE EIGHTH ANNUAL "Consolidated Consumer Analysis" once again provides data on buying habits and overall use of many types of products in individual markets served by the newspapers who participated. The consolidation was compiled by Newspapers' Consolidated Consumer Analysis, Milwaukee 1, Wis., and contains a tabulation showing the fuels used for home heating in 16 of the 17 markets covered in the study.

For the original surveys conducted by the newspapers in their own marketing areas, 44,049 representative families furnished consumer preference data on more than 500 separate items. The percentage of families whose homes are heated with oil, gas, coal or coke and electricity are:

	PERCENT			
	Oil	*Gas*	*Coal, Coke*	*Electric*
Portland, Me.	66.7	4.3	27.8	..
Washington	37.4	30.4	21.7	..
Cincinnati	2.3	61.5	33.2	..
Columbus	6.6	57.0	35.1	..
Indianapolis	39.8	6.7	52.5	..
Milwaukee	31.3	21.9	47.3	..
St. Paul	55.4	24.4	19.7	0.3
Duluth-Superior	45.2	6.4	48.4	..
Omaha	30.0	47.8	21.9	..
Salt Lake City	5.2	71.5	23.2	0.2
Seattle	81.0	4.3	13.3	1.4
Long Beach	0.7	98.5	0.1	0.4
Sacramento	2.1	95.8	..	2.3
Fresno	3.1	92.3	..	2.0
Modesto	1.1	96.1	..	1.7
San Jose	1.3	96.6	2.2	..

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Merrill H. Robinson, former Sun Oil Co., Newark, N. J. district manager, died recently at his home in Short Hills, near Newark. Robinson had served as manager of Sun's Newark sales district for nine years. He joined Sun Oil Co. in 1924 as a motor products salesman in New York, and has served as district manager at Buffalo, N. Y. and Boston, Mass. before going to Newark. He is survived by his wife, Margaret.

Part V: Oilburner control Series

Penn Controls

Heat anticipating Thermostat made in 1934 said to pave way to smooth Oilheating

by
J. W. Schulz

IN THE EARLY DAYS of automatic heating, conventional room thermostats gave fluctuations in temperature of six to eight degrees and more. That's the start of the Penn Controls story which explains why it brought out its heat anticipating thermostat in 1934. This company still uses room-temperature recorder charts made more than 18 years ago to prove that it introduced the first practical two-wire heat anticipating thermostat.

The Penn heat anticipating room thermostat works in this fashion. As the room temperature drops to the temperature at which the thermostat is set, (1) the thermostat contacts close and the oilburner starts. (2) Immediately the electric current flowing through the thermostat starts warming the simple little wire in the thermostat that produces the heat anticipation feature—and the word warming may be overstatement because only a speck of heat comes from the little wire. At the time when operation of the oilburner has raised the temperature of the room only a fraction of one degree Fahrenheit, this raise in room temperature plus the auxiliary heat provided by the little wire result in (3) opening of the contacts of the thermostat. The heat-sensitive bimetal spiral in the room thermostat, which opens and closes the thermostat's contacts, is affected by (a) the speck of heat from the little wire, and (b) the room temperature. (4) Current no longer flows through the thermostat after its contacts open; thus the bimetal spiral cools faster than the surrounding air with the result that the contacts close again and start the burner again before any noticeable drop in room temperature.

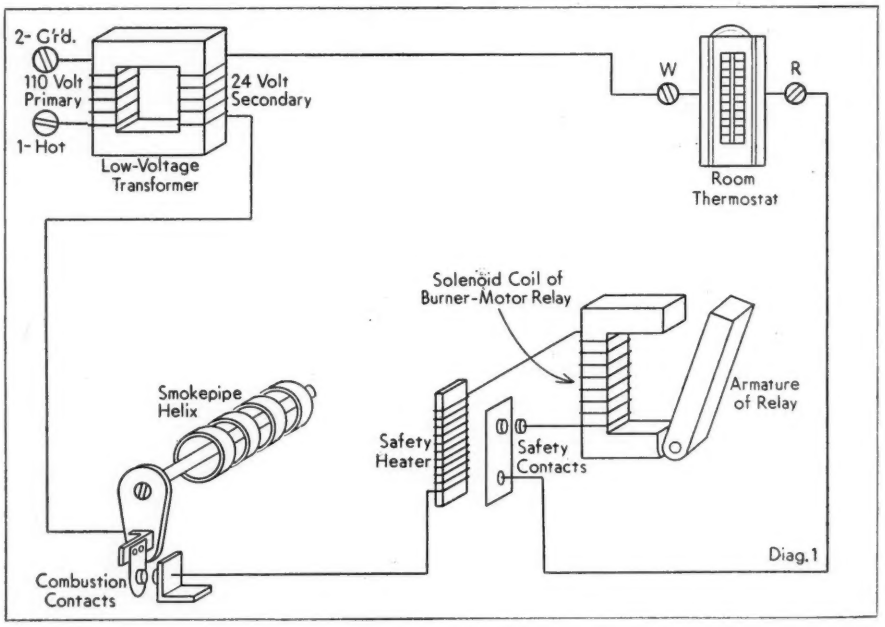
That's the way Penn Controls men describe the action of their room thermostat.

As the outside temperature drops lower and lower, the Penn thermostat lengthens the oilburner "on" periods and shortens the "off" periods. The heat output of the heating plant is balanced against the heat loss of the house and, the story goes, the room temperature is maintained within one-half of a degree of the desired level.

The thermostat has a sensitivity adjustment called the Graduated Cycleator, with markings "A-B-C-D-E" and "Wide" at the "A" end of the scale and "Close" at the other end. This permits adjustment to meet the characteristics of different types of heating systems—and characteristics and preferences of different oilburner dealers and servicemen. You are not stuck with long oilburner "on" periods with this thermostat, Penn Controls men point out, nor must you use short "on" periods. By turning a little adjustment screw a few degrees, you can have "on" periods to suit you—long, short, or in-between.

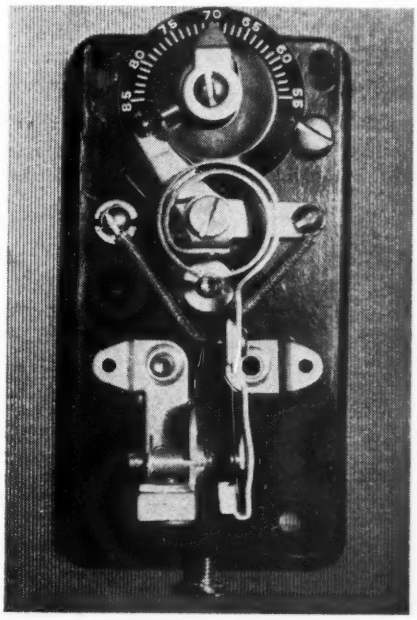
Penn Controls recommends point-blank that its room thermostat be located properly, saying height from the floor is all-important, and should be 24" to 30". As good explanations are given for this—involving chair height, the zone people actually occupy, and heights of people—and as behavior characteristics of the thermostat may be involved also, those who decide the heights at which Penn thermostats are installed should think twice before disregarding the manufacturer's advice and installing them higher than 30" above floor level.

Penn offers the Day-Nite Tem-Clock arrangement. To reduce the heat at night, the clock—a separate timepiece located remote from the room thermostat—closes a switch and puts low-voltage current through a night set-back electric heater in the thermostat. This gives what may be called a false rise in temperature inside the thermostat. In



Diag. 1—**Unique circuit** *used in Penn primary oilburner control panels, all models, can be understood easily by mastering this starting circuit, as the first step. A friction clutch is used to permit the helix rod to continue to turn after the combustion contacts are fully closed or fully open. The slot in the helix rod permits applying a screwdriver to close the contacts. As can be understood from studying this circuit, the combustion contacts must be closed for start-ups. That is, with the contacts open the burner cannot start when the thermostat circuit is closed.*

Penn room thermostat, *described as having paved the way to modern oilheating comfort. The little electric heater wire that does the trick is V-shaped, can be seen below the heat-sensitive bimetal spiral. Sensitivity adjustment at the bottom of the instrument alters the effect of the dedent magnet used to snap-act the contacts.*



effect, it fools the thermostat into believing the room is warm enough, say 72°, when actually the heat is reduced for the night. The clock cuts off the flow of current to the night set-back heater in the morning, at any desired time of course, and following this the day temperature is maintained.

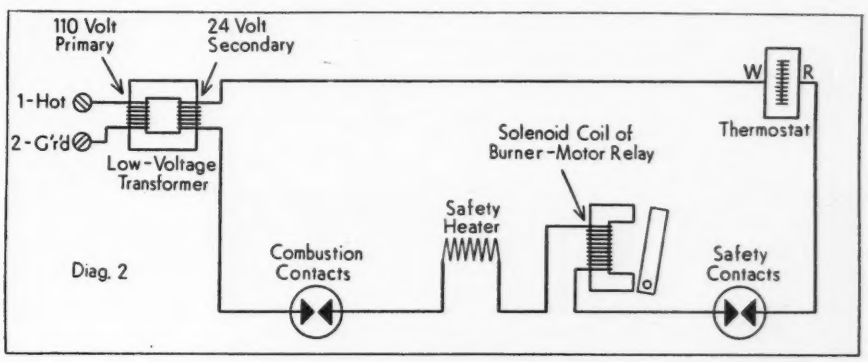
Penn Controls men prefer a separate clock and a separate thermostat. They ask, "What good is a timepiece located at the proper location for the room thermostat?" They say they believe in locating the thermostat where it should be, and locating the electric clock where it serves the house occupants best, where they want to see it. To the minds of Penn Controls men, the ideal arrangement provides two separate units. Penn thermostats can be fitted with night set-back electric heaters that reduce the temperature at night by 3°, 6°, 9°, 12°, or 15°.

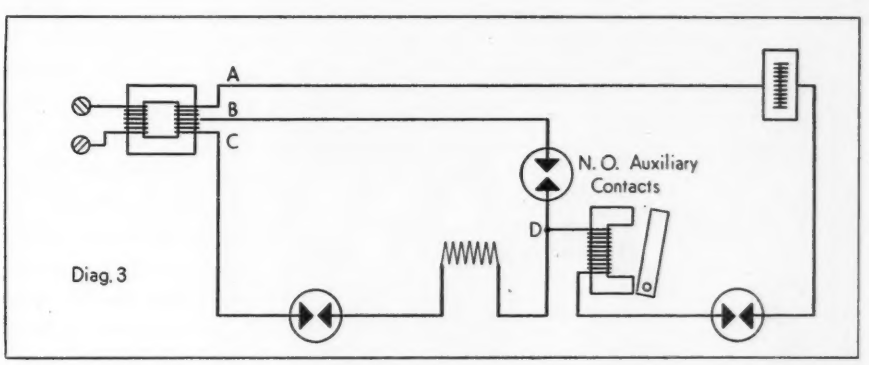
Penn Controls men started emphasizing the need for excellent room thermostat performance in 1934. They are still at it today. They certainly are correct in pointing out that you can't provide the best oilheating comfort without installing a room thermostat that controls the house temperature properly. Comfort in an oilheated home depends on excellent room thermostat performance.

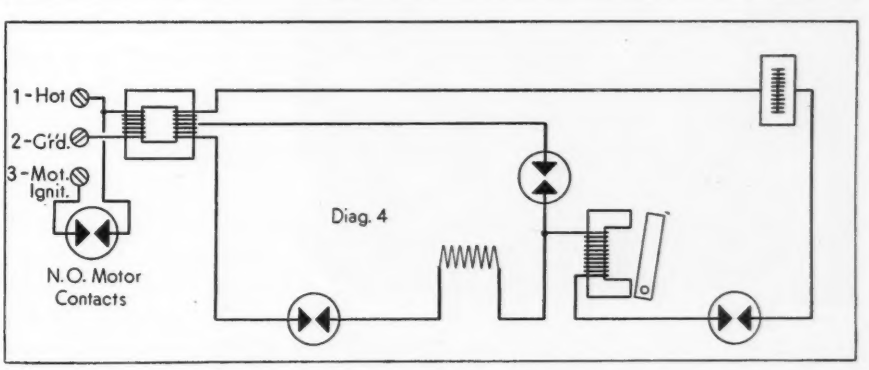
Penn makes intermittent-ignition and constant-ignition safety control set-ups in two types. One type is a stack-mounted one-piece control panel. The other is a two-piece arrangement that includes a low-voltage combustion detector, normally stack-mounted, and a control panel not mounted on the stack.

All Penn alternating-current primary controls employ a unique basic circuit. The trick to this can be understood by studying accompanying Diags. 1, 2, 3, and 4. To start out, consider Diag. 1 as representing part of the internal low-voltage wiring of the Penn continuous-ignition control panel which is of the stack-mounted, one-piece type, Type 670.

In Diag. 1, normally with the burner ready to start for its room thermostat, 110-volt current or other line-voltage current flows through terminals 1 and 2 in the upper left-hand corner of the drawing, powering the primary of the low-voltage transformer. This transformer and all the other devices shown in Diag. 1, with the exception of the room thermostat, are integral parts of stack-mounted Penn control panels.







Diag. 2 (top) is a **simplified version** *of Diag. 1. Study Diag. 1 first to learn the mechanical aspects of the parts in Diag. 2. Diag. 3 adds the* **normally-open auxiliary** *contacts, which are open when the solenoid coil of the burner-motor relay is not energized, closed when the relay snaps in. Electrical path "B-D" is highly important—it holds in the relay after the combustion contacts open because smokepipe heat affects the smokepipe helix. Diag. 4 adds the* **normally-open motor contacts,** *also "on" only when the solenoid coil of the relay is energized.*

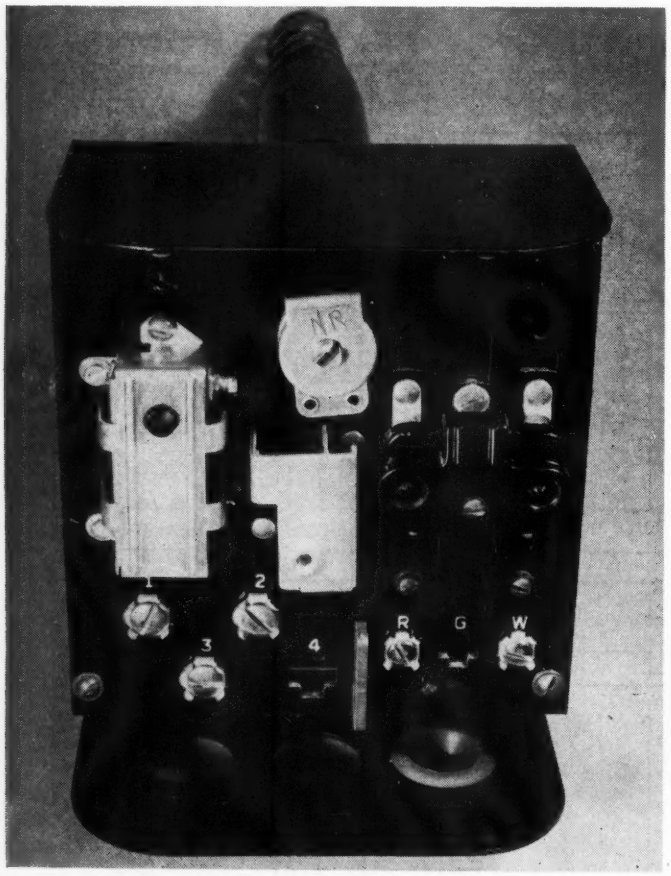
With line voltage applied to terminals 1 and 2 in Diag. 1, closing the thermostat circuit (terminals "W" and "R") will cause the burner-motor relay to snap in—if the combustion contacts are closed because the smokepipe helix has chilled since the last oilburner run and closed them—and if the safety contacts are closed because the panel is not "off on safety lock-out" or "off on safety."

Lowering the temperature of the smokepipe helix in Diag. 1 closes the combustion contacts. The control must be in its starting or cool-stack condition to permit the burner to start; the combustion contacts in Diag. 1 must be closed. After a burner has been installed or serviced, these contacts may be open. If they are and therefore the burner won't start, you can close them easily by applying a screwdriver to the slot in the end of the helix rod, turning the rod clockwise about an eighth of a turn, then permitting it to return slowly to its original position. Watch the contact blade that moves as you do this, and make certain that as you complete these steps the blade moves to its right-hand, closed-contact position.

Diag. 1 reveals what you are doing. You are closing combustion contacts that must be closed to complete the circuit used to start the burner.

To start the burner, the entire low-voltage circuit shown in Diag. 1 must be closed. If the safety heater is burned out, for example, the burner can't start.

In series in Diag. 1 are two 12-volt components, the safety heater and the solenoid coil of the burner-motor relay. With 24-volt current given this circuit by the transformer secondary, the voltage difference across the safety heater is nominal 12 volts, and the voltage difference across the solenoid coil of the relay is the same.



Continuous-ignition stack-mounted **Penn oilburner panel** *—the wiring of this panel is shown in Diags. 1 to 4. Re-set button of safety contacts is at the left, combustion contacts opened and closed by cooling and heating of the smokepipe helix are in the center, burner-motor relay is at the right. Every installation man and serviceman should be familiar with the slot in the helix rod, used to put close combustion contacts. With these contacts open inadvertently, the burner will not start.*

The safety heater is shown next to the safety contacts. If sufficient heat from the safety heater reaches a bi-metal strip device that holds the safety contacts closed, the safety contacts will snap open. Once open they will remain open until someone presses the safety re-set button with which the control panel is equipped, and which can be pressed without removing the cover of the control.

Diag. 2 shows the same devices as are in Diag. 1, in a simpler fashion that can be understood after studying Diag. 1.

Protection against low-voltage conditions is a big point in connection with the features of Penn oilburner control panels. One point relates to Diags. 1 and 2. If the line voltage applied to a 110-volt control is lower than 90 volts at the time the burner should start, the burner-motor relay will not snap in—it is voltage-sensitive and calibrated. The burner will not try to start if the voltage is insufficient for the ignition transformer of a gun burner, for example, to give a strong spark. Under these conditions, and as Diags. 1 and 2 bring out, the safety heater will become warm because current is flowing through it, the circuit being completed. If the line voltage remains below 90 volts for about five minutes or longer (the timing depends on what the line voltage is), sufficient heat from the safety heater will reach the safety contacts to cause them to snap open. The panel will then be "off on safety lock-out" and manual re-starting of the burner will be necessary.

Transformer center Tap

Diag. 3 makes the big point that the secondary winding of the low-voltage transformer has a center tap.

Snap in the burner-motor relay in Diag. 3 by closing the room thermostat circuit, and you close the normally-open auxiliary contacts of the burner-motor relay. N. O. stands for normally open and means that the contacts are open when the coil of the relay is not energized. The auxiliary contacts are part of the relay; snapping in the armature of the relay closes them, just as it closes the contacts in the relay which start the burner motor.

With the thermostatic circuit closed in Diag. 3 and the relay snapped in, the burner motor is running. The upper half of the secondary winding of the transformer gives 12-volt current to the solenoid coil of the burner-motor relay, from points "A" and "B." The lower half of the secondary winding gives 12-volt current to the safety heater from points "B" and "C." Thanks to the N. O. auxiliary contacts closing, point "B" is now connected to point "D." Continued operation of the burner heats the smokepipe helix and causes the combustion contacts to open, but the burner-motor relay does not drop

out and stop the burner because the "B" to "D" line completes the circuit of the solenoid coil of the relay. As was stated earlier, both the safety heater and the solenoid coil of the relay operate on 12 volts.

If the combustion contacts remain closed for about 105 seconds after the relay snaps in and starts the burner, the safety contacts will snap open and remain open. The burner will be "off on safety lock-out." The safety contacts snap open when sufficient heat from the safety heater reaches the bi-metal latch that normally holds these contacts together.

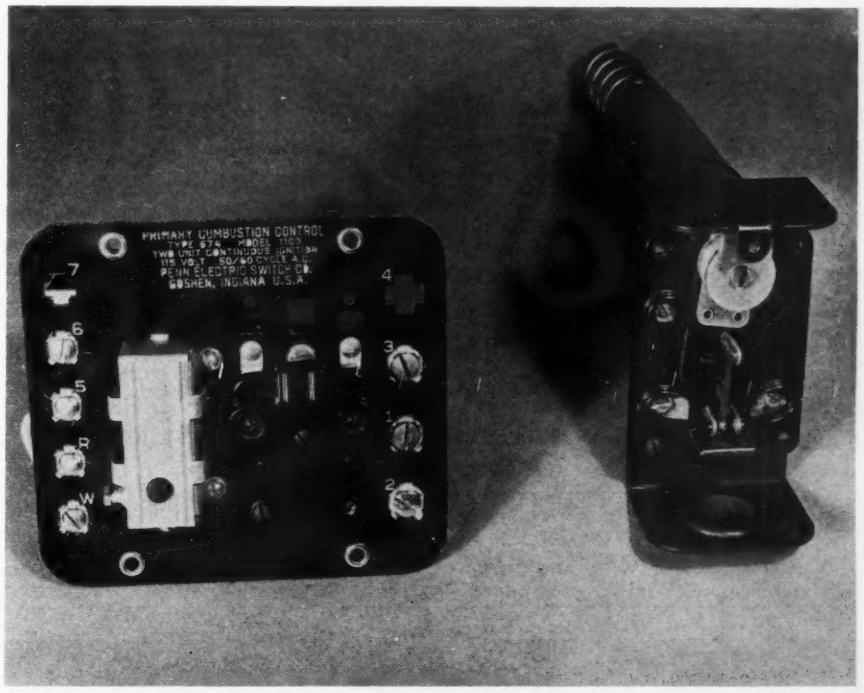
Diag. 4 includes the line-voltage normally-open contacts which give current to the burner motor and ignition transformer when the burner-motor relay is energized, snapped in. These are labeled "N. O. Motor Contacts."

Low voltage Protection

The men who stress the technical advantages of Penn oilburner control panels put tremendous emphasis on this point: In addition to providing protection against low line-voltage at times of burner start-ups, these panels provide protection against low line-voltage after burner motors have been started. Using a Penn panel, a burner stops if during its normal operation the line voltage drops below 70 volts (in a 110-volt system). These men point out that if the line voltage drops to below 70 volts just after a burner starts, the ignition transformer of a spark-ignition burner will fail to produce a spark adequate to establish combustion. They use the word "BOOM," capitalized, to describe the results of keeping the burner motor running while the line voltage, at first below 70 volts and inadequate for ignition system purposes, increases to 90 volts or higher. The ignition transformer, they say, will produce a spark which will ignite oil vapor accumulated in the combustion chamber.

The arrangement used to provide intermittent ignition in Penn oilburner control panels is not shown in the accompanying drawings. A burner dealer determined to teach his installation men all about Penn burner control panels needs: (1) Type 670 standard stack-mounted control for continuous ignition, (2) Type 672 standard stack-mounted control for intermittent ignition, (3) a two-unit set-up for continuous ignition, and (4) a two-unit set-up for intermittent ignition.

Continuous-ignition two-unit **Penn burner control set***—like all AC Penn primary control equipment for oilburners, this employs the unique circuit described in the article. Two-unit controls simplify dealers' installation problems, when part of factory-wired burners, oil-furnaces, and oil furnaces. They also provide neat, rigid, cool, clean locations for the panels themselves. Big problem of control manufacturers lies in educating dealers, installation men, and servicemen in the advantages of two-unit control systems, end unjustified opposition that comes from dealer-level oilburner experts not yet familiar with these new types of controls.*



The panels of the two-unit set-ups come in two types for mounting on burners. Type 674 provides continuous ignition, Type 675 can provide intermittent ignition. Either panel is used with Type 673B stack unit, which is simply a set of low-voltage combustion contacts operated by a smokepipe helix (see the lower left-hand corner of Diag. 1 to gain a rough idea of this simple stack unit).

The two-unit Penn oilburner control systems permit the control panel to be burner-mounted and largely wired by an oilburner manufacturer; also can be put in place and wired (with or without the stack unit being properly located and wired) by a manufacturer of furnace-burner units or boiler-burner units. The results include savings in time and material for field wiring done by a burner dealer, and an important elimination of the possibility of faulty wiring in the field. If a combustion detector unit is improperly wired on-the-job, the panel connected to it will fail safe—either the burner won't start, or the panel will lock out on safety.

Field check-ups made by the author of this article bring out that certain oilburner dealers, installation men, and servicemen do not like two-unit safety control set-ups in general. Their dislike extends to all makes. Without exception in the cases investigated, the reason for this was unfamiliarity with two-unit set-ups, and fondness for older types of controls in which the men were educated and experienced. Given two-unit set-ups to experiment with, these men gained an amazing fondness for them which probably grew partly of the pride they took in being among the few men in their companies who understood such controls thoroughly. Burner technicians who want to be fair-minded do not condemn equipment with which they have not become familiar!

(Please turn to page 132)

Northwest picture Show

A dozen interesting Activities are encountered on Pacific Safari

by
Robert Gray

THERE'S A DUTCH saying in Eastern Pennsylvania that "the more you go the world about, the more you find by golly out." You can't escape that observation on a visit to fueloil and oilheating men out in Oregon and Washington.

It's a strong oilheating area, with a much higher per cent of the families using oil than in most parts of the country. Yet it's so detached from the other principal oilburning areas as to be little influenced by them in operating practices. Again the Northwest is always interesting because the marketers sell fueloils for a variety of unusual applications.

Naturally, very few oil and burner men can be visited on such a trip which is always a high speed affair, but on every jaunt to that colorful region you're sure to get fresh ideas. Just a few are discussed here.

First, the cover picture on this issue shows eight high school students who were educated for a day in business practices and opportunities by Fred Griffin and his associates in Griffin Fuel Co., Seattle. In the "Oil Men for a Day" story in the February 1951 issue, Horace Davenport of Salem had brought in high school students for a day and assigned each to an individual job for the full period. Griffin did it another way. His students stayed in a group, spent an hour in each principal department, including actual deliveries. At the day-end round table, the students expressed, among other observations, the point that they were surprised to find working people so happy in their jobs.

One company visited is not discussed here because its activities will be covered later. Jim Yeomans of

Unique service charge *idea has been successfully tried by Charles Holloway, Jr., Liberty Fuel & Ice, Portland. Wage rates for skilled men are $2.42½ and minimum call charge was until recently $4.50 which proved too low.*

Yet there were complaints from some customers in instances where the trouble was minor and fixed in a few minutes. Under a new arrangement the charge is $1.50 for getting the man to the house plus 50¢ for each six minutes that he works. So if it's something very simple that he can fix in six minutes the charge is only $2.00, which in effect becomes the minimum charge.

If he stayed a full hour the charge would of course be $6.50. The average actual billing is about $6.00 where before it had been $4.50. In checking with the service manager in April after 300 billings had gone out on the new basis there had been only two complaints over charges. The company features Delco burners, California Standard fueloil.

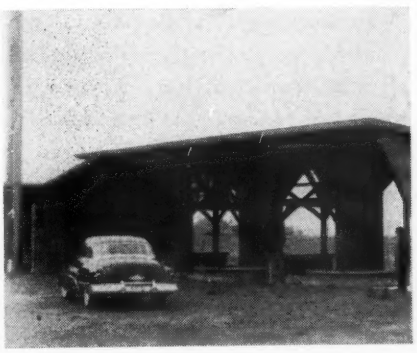
Rolling his own, *Mose Vining of Diesel Oil Sales, Seattle, has just equipped a fine new sheet metal shop to take care of the duct work on his oil furnace installations. Mose had tired of the typical delays and other headaches in farming out this work.*

Recognizing that he must have a steady flow of orders to hold good sheet metal men he goes after any kind that is suitable for his equipment and currently has around $160,000 of work ahead for the shop. One interesting order was for a new residence for Boeing (aircraft) in which he lost the heating job but got the ducts separately at $9,000. Mose sells Timken and Standard fueloil.

Chas. Holloway, Jr.

Multnomah Fuel Co., Portland, has sold his fleet of 27 trucks to a renting company and then leased them back, at genuine savings. As a result of the talk with Yeomans we have looked around and found a number of companies with somewhat similar arrangements; we plan to discuss the whole subject, including Yeomans in an August issue feature.

Mint still *in the Yakima Valley uses a Ray burner on No. 5 oil. The underground vats are filled with mint from the fields. Then steam is turned in*



which results in extraction of the oil into solution with the steam. Later condensed, the oil separates from the water. A 50 gal. drum of this mint oil brings $1,750 when shipped to chewing gum and candy makers.

Shepherd and guide *Dick Norton, otherwise Shell's director of public and industry relations, Seattle Div., who squired us down through the Columbia*

Basin and points south for a couple of days while we looked in on some of the interesting marketers.

Summer truck use *by Paul Kinnune who operates Western Fuel of Everett, Washington. He sprays lawns and gardens with a liquid deodorized fertilizer made from a fish base. It's a new venture and only 40 jobs had been handled at the time of getting the information but results had been good.*

Kinnune steam cleaned a fueloil truck, removed the oil hose and replaced it with 250 ft. of common garden hose. He also made from aluminum pipe a four foot bar spray with a shut-off valve on the handle. The spray rate is seven gallons a minute.

The average lawn is 4000 to 5000 sq. ft. The operator first figures the footage to be sprayed, allows one gallon to each 20 sq. ft. and sets the regular oil meter accordingly . . . which shuts off automatically when the proper gallons have been used.

Prices charged are: 2000 sq. ft. or less $5.00; up to 3000 sq. ft. $7.50; up to 4000 sq. ft. $8.50; up to 5000 sq. ft. $10.00; above that $1.50 per thousand sq. ft.

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WESTERN FUEL *of* EVERETT

Moustaches askew, *these firemen glorify the Griffin Fuel Co. of Tacoma, where Ed Griffin (brother of Seattle's Fred previously mentioned) is mastermind. In addition he's a collector of ancient cars like this fire truck and probably the only fueloil man in the nation equipped to put out fires.*

Ed has a new interesting activity, a road oiling business. So far it's small . . . around $15,000 gross but it accomplishes several objectives.

It helps use a few men in summer, three drivers and a salesman or two. It is operated with one heavy fueloil truck, one sand truck and one pickup truck for barricades, service, etc.

This service is sold to homeowners who live on gravel or dirt roads, a block at a time. The regular fueloil drivers on their rounds make notes of prospects and they're then covered by direct mail. A little newspaper advertising is also done.

An average block has around a thousand square yards of road surface. The charge for oiling is 4¢ a yard or $40 for the block . . . using seven barrels of No. 5 oil. Then sanding is $15 for the block and uses two yards of sand. One application is enough for the season and if the roadbed is in very good condition it will last several seasons.

Griffin finds this business, although it is quite new, a good customer contact. The homeowners along the block, of course, pay for the oiling.

NH3 for offseason profits *is the interesting activity of R. H. Bowles, Toppenish, Washington. NH3, for the few folks who didn't know it including the author, is anhydrous ammonia, developed by Shell Oil at its West Coast refineries and sold to farmers for nitrogen fertilizer.*

Bowles went into the business because this work is done in the spring and early summer and helps to round out his monthly sales. He buys it in tank cars containing 50,000 lbs. in liquid form. It's loaded into tanks on wheels with around 1,700 lb. capacity and these are drawn behind trucks or tractors out to the farms. The liquid is forced deep into the soil.

Bowles uses eight tractors and each can apply about two tanks a day. The sale price is 11½¢ a pound plus $3.00 an acre, so you can see that this activity grosses upward of $3,000 a day in season. The cost to the farmer is the same as he would pay for equivalent nitrogen in bags and he saves the labor cost of putting it on the field.

Bowles has 1,000 fueloil accounts but only 10% use furnace oil, the others have space heaters. He delivers the so-called stove oil through typical degree-day methods, exactly as he does the furnace oil, although he sometimes has to make some mental adjustments.

R. H. Bowles

The system for space heaters is not fool proof in either the coldest or the warmest days. On coldest days the space heater may not handle the whole house, so the family moves in closer; in warmest heating weather they may turn it off because the kitchen range and the water heater keep off the chill. But anyway, Bowles finds the system practical.

The sugar mill in the photo is supplied by Bowles with 60,000 barrels of No. 6 oil (PS400) a year. It's burned in four months using four Enterprise burners. The annual output of 450,000 tons of beets is dried in huge kilns right in the combustion gases.

Loot holders *in a previous Spokane sales contest much like another one that's going on now. All principal oil-heating (and stoker!) dealers work together under the wing of the Washington Water Power Co.*

Into a jackpot goes a contribution from two dealer associations and then the individual dealer puts in additionally $2.00 for each burner sold by his men and $4.00 for each furnace unit.

Any salesman getting five or more orders begins to get cash prizes from the central fund and gets a chance at drawings for larger amounts.

The newspaper ad schedule carrying large space in two papers started April 22, closes August 17, includes 15 insertions. From previous experience a city-wide contest embracing all dealers and all salesmen creates broad rivalry and, backed by advertising, is effective.

Radio spot technique *has helped F. L. Croteau, Diamond Ice & Fuel Co., Spokane, to build a strong fueloil volume, for Tidewater, also Timken burner sales. He uses 640 radio spots a year but runs them 10 times a day on 64 carefully selected days. He also uses 15 newspaper ads, each 36 col. inches, in a year. Operating six fueloil trucks on a margin of 3.8¢, he reports No. 2 oil (PS200) selling at 16.3¢, while stoker coal is $19.50 and hand fired sizes $21.50. Croteau is vice-chairman, Oil Heat Institute of Wash.*

Market topper *Leon Boyle, Jr., head of Boyle Fuel Co., Spokane, who moved from 10th place to first in Spokane light oil sales in five years by selling his oil ¼¢ higher than anyone else in town. He put an additive of his own into Shell oil, advertised it as "Caterized," a premium fuel. After gaining the top gallonage spot he discontinued this because by then Shell had its own additive.*

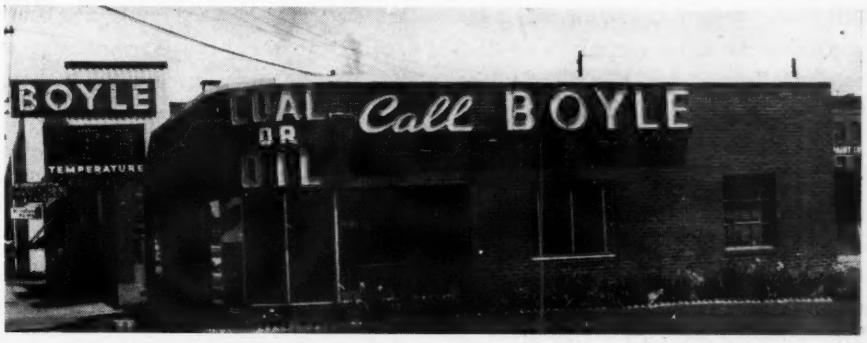
His temperature sign in front of his office has attracted so much notice that townspeople phone all day to learn how cold or hot it is. With nine light oil trucks he sells 4 million gal. and is also the largest burner seller in town with 500 jobs a year, using Rossoe brand this year. He does 300 jobs in his own sheet metal shop.

When a builder sells coal equipment in a home development, Boyle waits about two years and then tries, often with success, to sell an oilburner by use of the open-end mortgage; thus the burner adds only a little over a dollar a month.

Radio is the featured promotion, with 13 newscasts a week, each 15 minutes . . . at 7 A.M. and 10 P.M.

Leon Boyle, Jr.

As another management novelty, Boyle sets up 1/10 of 1% of all billing to care for any unexpected customer situation, thus avoiding a lot of arguments.



2½ Million horses *rear out of Coulee Dam to help ease the great energy shortage of the Northwest. That's more energy than could be exerted by every man in the country if they had to do it manually.*

In the pleasant company of the Tom Reeds of Cal. Standard we were given the deluxe tour of the dam by public relations director D. L. Brechner.

Tom Reed

The current is marketed through the Bonneville Power Authority, which pays Coulee 2 mills a KW which will comfortably amortize the investment.

Best fueloil marketers *come through the coal industry instead of through gasoline jobbing, is the opinion of Ray Roberts, who heads Great Western Fuel Co., Spokane. His opinion could well be checked in that market since the three largest fueloil outlets were, and in fact still are, also in the coal business.*

Great Western sells Iron Fireman burners, around 300 a year, and in that strange country they still sell stokers now and then. With Standard fueloil, the company operates 11 trucks on light fueloil, one on heavy.

Ray Roberts

New Products at the Boston Show

Highlights of equipment Exhibition sponsored by Oil Heat Institute of New England

THE BOSTON SHOW was altogether satisfactory to the thousands of oilheating industry men who attended it June 2nd to 5th. Called the Eastern Biennial Exposition of Oil Heat, the show was more compact than the big national shows, which gave visitors plenty of time for each of their stops at booths and a good chance to study the equipment in each. The exhibits were in the Hotel Statler, which was quite convenient for the many visitors and exhibitors who stayed at the hotel. All-in-all, this was one of the most enjoyable shows on record.

The following run-through of equipment highlights at the show is limited strictly to new equipment—equipment not at previous shows. Readers interested in the new products mentioned here should obtain complete information on these products from manufacturers, as space limitations of this article permit only a brief mention of the characteristics of the new items.

Portmar Boiler Co., Inc. (in Booth 101, the first booth listed numerically in the Directory of Exhibitors distributed at the show) announced its brand-new WH Series so-called volume water heaters for oil or gas firing. For launderettes, hotels, institutions, etc., these combinations of boilers and high-capacity built-in tankless water heaters come in nine regular sizes, smallest fired 3.0 gph, largest 12 gph. Specially-made Portmar volume water heaters provide up to 5,000 gph of hot water. Portmar also announced its Type C oil-or-gas steel boilers for steam or hot-water heating; 12 sizes, low waterline and low headroom featured, split or one-piece construction.

Wm. Steinen Mfg. Co., Inc., showed for the first time its smokepipe draft regulator, swinging-disc type, for domestic oilburner installations. Features: Unusually great sensitivity to give maximum fuel savings; calibrated in terms of smokepipe draft so that if the serviceman knows the smokepipe draft needed on the particular installation he can set the draft regulator without the help of a draft gage. A unique feature is that two weights, not one, are moved in adjusting this draft regulator.

Lorden & Edwards Co., manufacturers' representative, exhibited many new products including the new Model B-7 Bettendorf pressure oilburner designed for small, tight furnaces that tend to pulsate. Daringly described as quieter than other gun burners, the Model B-7 is rated at .75 to 2.0 gph. Lorden & Edwards also showed a new line of Hoff Square-Line fin-type base radiation for forced hot-water; can be installed singly or double-stacked; has easily-installed damper to adjust heat output. The new Universal Kolbkast combustion chamber also was exhibited by Lorden & Edwards. This permits building fireboxes of any desired shape from square or rectangular to oval or pear-shaped, is made of light, insulating-type refractory material.

Flagg, Brackett, & Durgin, Inc., announced new No. 20 Series Nebraska boiler equipment made by the Nebraska Boiler & Supply Co. A water-tube type steam boiler enclosed in a refractory and steel casing, this is made in nine sizes, nominal ratings from 35 to 300 hp, for steam pressure up to 250 lbs.

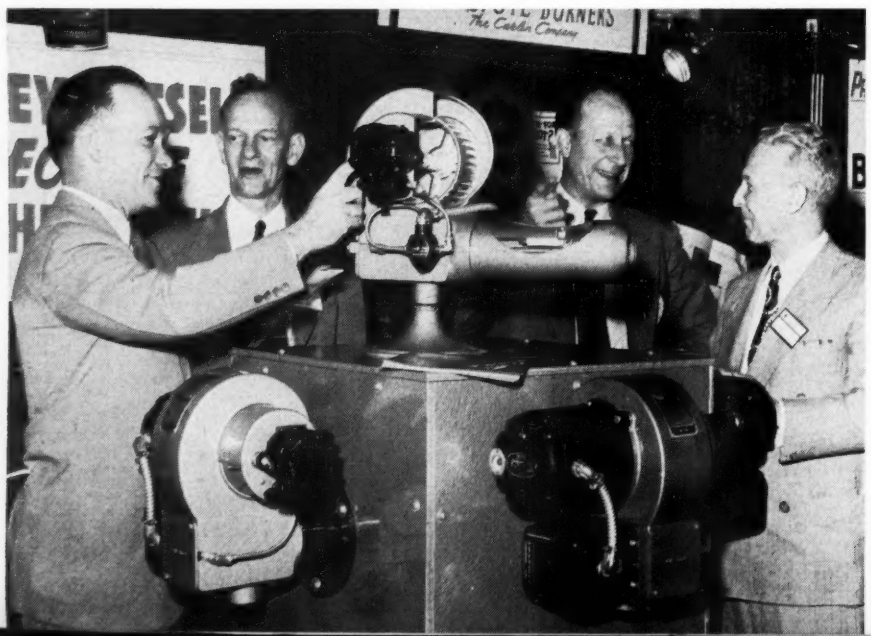
The Meyer Furnace Co. says it has two furnaces in one, in its new Series B winter airconditioner, two sizes for .85 gph and 1.2 gph. A dealer makes a hi-boy or a counterflow unit by locating the blower section either above or below the furnace unit. The Weir-Meyer Marvellaire System, or M-V Small-Duct System, comes in five different packages. By ordering a combination of these, a contractor can heat any home having up to nine rooms. The packages contain all the supply and return ducts, all the registers and volume dampers, all the register boxes, needed for a complete distribution system. Even the sheetmetal screws and tape for sealing joints are included!

Arthur E. Wood Co., New England distributor, had at the Boston show the new Firewell 70,000 Btu hi-boy furnace, optionally fired by a Boston-Breese vaporizing burner or a Wood pressure burner. Features: compact, shipped completely-wired and ready for firing, refractory firebox of insulating firebrick.

Metropac, unique in showing a warm-air airconditioning type furnace that can provide year-round hot water on tap, introduced at the show its new year-round furnace of lower capacity than previous models. Fired at .85 gph, this has a 30-gallon built-in hot water storage tank.

Empire Chemical Products Co. brought out, especially for cleaning commercial-industrial tubular boilers, its new Super model vacuum cleaner.

The National Radiator Company concentrated on a new Packet oil



boiler, the Model K. Described as an all-in-one heating and hot-water unit, this 1.0 gph boiler can be installed in a kitchen. Its tankless water heater is rated for 3.0 gpm. The steel firetube boiler is SBI rated, is of ASME construction.

Auto-Flo Corp. described its automatic humidifier for warm-air furnaces as new and revolutionary. Control of the water-feed is unique, for the humidifier pan itself moves, the weight of sufficient water in the pan lowering it and closing a feed valve. The big feature is a one-year guarantee applying even in hard-water areas.

Quiet Automatic Burner Corp. had at the Boston show a new Model U75 forced-air furnace, **.75 gph firing rate,** designed for lowest-priced homes. Features: Fully insulated jacket; handsome, compact appearance; large flame-inspection door; shipped fully assembled; firebox of refractory material.

The new Vikimatic Model CA-275 unit is described as a packaged year-round airconditioner of the indirect type. Over a .75 gph hot-water type boiler is a hot-water air-heating coil which heats the house in winter. The boiler does not provide hot water on tap. A two horsepower air-cooled freon compressor cools the house in summer.

Finding that the Boston show was nicely timed for this, Silent Glow announced its Coronation pressure burner, greatly different in appearance and design motif from any previous Silent Glow burner. Highly interesting is the variable speed drive for both the fan and the pump, which gives high efficiencies over a vast range of firing rates —.75 to 4.0 gph—and provides what Silent Glow describes as dynamic silencing by causing the shafts of the motor, the pump, and the blower to run at different speeds. In describing the effect of the three shafts running at different speeds, Silent Glow men at Boston referred to soldiers breaking step when crossing a bridge. They said the Coronation burner weighs only 48 lbs., compared to the 90 lbs. of many typical pressure burners of comparable gph ability. The use of the belt drive gives full 60-cycle capacity with the burner using odd-cycle current—25 or 50 cycle. Silent Glow furnaces and boilers fired by this Coronation burner have the Solar Glow Flame Filter, which in effect according to Silent Glow men filters all the Btu's out of the fueloil. There's a big story to this, involving rapid firebox heating and benefits of catalytic combustion.

Petro has eliminated six points of lubrication from its furnace-burner unit, newly announced at the show as available in .60 and .75 gph sizes. Sealed bearings needing no oiling are used for the shafts of the blower, burner motor, and blower motor. Circulating blower is now spring-mounted.

A big "First Showing" sign on the huge stage taken up by the displays of the Williams Division, Eureka Williams Corp. (Oil-O-Matic to you) referred to the Air-O-Matic airconditioning units. Made in sizes of 2, 3, and 5 tons, these water-cooled summer airconditioners can be used alone or with forced-air furnace systems. Cabinets match those of Oil-O-Matic furnaces.

Chrysler men declared they had new 2 and 3 hp cooling units in their line of "Packed Airconditioners Air-Cooled" and "Custom Airconditioners, Air-Cooled." These feature a remote air-cooled condenser, and add to the Chrysler water-cooled line.

New for V & E Products, Inc., at the Boston show was an extended jacket for all horizontal V & E oil boilers—this is doghouse type and lifts off to permit easy servicing. There's a new 1.0 gph completely packaged V & E unit for steam or hot-water type heating; shipped assembled and pre-wired at the factory, this comes with a unique ¼" steel plate to protect the controls and wiring en route.

New at Boston for Silent Automatic Products were cast-iron sectional, rectangular oil boilers in sizes for 1.15, 1.45, and 1.95 gph.

The Acme Heating Division of The United Tool & Die Co. featured as new its Acme Aire forced-air furnace, Model 93 for 1.0 gph, Model 125 for 1.25 gph. Of all-welded steel construction, this is described as unusual in being extremely compact and being made of heavy-gage steel.

Burnham Corporation offered new for the show its Series 4 Pacemaker boiler designed exclusively for oilfir-

ing. Available with a pressure burner, this comes in seven sizes for hot-water heating systems, six sizes for steam. Smallest size is fired 1.0 gph, largest 2.5 gph. New super-tankless and patented pendant water heaters are featured.

General Electric's airconditioning exhibit included a first showing of heating and cooling units described by booth attendants as prepared, packaged, and assembled. Included in one jacket was an oil or gas warm-air furnace, minimum .59 gph firing rate and maximum 1.5 gph, and a hermetically sealed cooling unit of 2, 3, or 5 hp. This is the first year General Electric has hermetically sealed units in these sizes. The line now includes 90 combinations of heating and cooling units.

Bush Mfg. Co. equipment on display included new expansion-type hangers for Bush commercial-industrial fin-type radiation. Swing type, the hangers are used for long-run installations.

On display for the first time also was the Model 910 Mueller Climatrol recessed summer airconditioner, ¾ ton capacity, which is installed under a window or in any outside wall.

Rochester Mfg. Co. used goldfish to prove the merits of the new hermetically sealed plastic cap on oil gages for 275-gallon tanks. Waterproof, this serves outside tanks as well as inside tanks.

The Boston show gave Combustioneer oilburner men an opportunity to announce a new feature of their low-pressure gun burner: Air for the compressor of the low-pressure fuel unit now is drawn from the housing of the regular blower of the burner; the new arrangement is said to eliminate possibilities of stoppage or plugging of the compressor air-intake by lint and dust.

Scully Signal Company, famous for its VENTALARM signal, drew crowds by demonstrating its four-foot-long tailor-made fueloil truck with built-in sound effects and apparently the ability to actually deliver fueloil.

The exceedingly realistic little fueloil truck first was started up to demonstrate a new Scully automatic throttle regulator that for pump-off provides precisely the engine speed at which the fueloil pump on the truck operates best. The throttle regulator is put to use automatically when the power take-off is engaged. It eliminates all need for manual regulation of the engine speed during the pump-off phase of operating the truck; Scully men point out that such manual regulation is by-guess and by-golly, thus invariably is incorrect.

The miniature fueloil truck next was used to demonstrate the Scully Remotomatic control for fueloil trucks. This saves considerable gasoline for fueloil truck operators by permitting the engine of a truck (stopped for unloading) to run only while fueloil is being pumped off.

The truck motor is started automatically when the hose nozzle of the truck is opened, and stopped automatically when the hose nozzle is closed. In the new set-up demonstrated by the little truck, the throttle regulator works with the Remotomatic control.

Weatherall Engineers, Inc., aroused great interest by showing for the first time its low-pressure gun burners for from .5 to 4.0 gph which have fuel units fitted with gear-type pumps to draw oil from outside tanks. Also in the fuel unit is a positive-displacement metering pump and an air compressor. Two lines connect the fuel unit to the nozzle, one for fueloil and one for compressed air. Booth attendants emphasized that the blower air and gph rate are adjusted with the burner running.

This feature will be concluded in the August issue of the magazine.

Fueloil for Cooling too!

Low pressure Burner powers Servel absorption Type airconditioning System

by

Charles Burkhardt

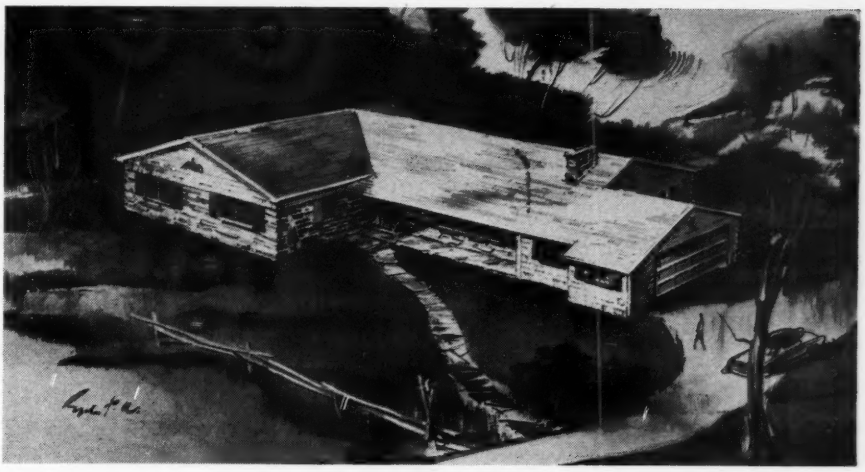
THE FIRST oilfired all-year airconditioning systems in which the flame from an oilburner provides the cooling as well as the heating are now being installed in 35 homes in the beautiful Kings Point-Sands Point region of Long Island. Priced in a range extending from $40,000 to $78,000, the homes contain every modern luxury and convenience, the foremost of which is residential airconditioning.

The Servel systems installed in these homes use absorption type refrigeration and utilize steam from a small generator or boiler within the unit for powering the refrigeration plant, as well as for heating. Actually the steam generator is a small cast-iron boiler fired with a Combustioneer low pressure gun type burner.

For heating, this burner uses at full capacity .93 gallons of No. 2 oil per hour, for a delivered capacity of 96,000 Btu's per hour, while for cooling it uses .53 gph for a delivered capacity of 40,000 Btu per hour or 3.3 tons of refrigeration.

This cooling capacity is based upon the standard method of rating, recognized by the American Society of Refrigerating Engineers with inlet water at 75° F., 390 gph, inlet air 80° dry bulb and 67° F. wet bulb. The blower usually delivers the same amount of air for heating and cooling cycles, from 1200 to 1400 cfm. However, an external bypass can be installed to increase air delivery to 1800 cfm. If greater than rated air delivery or higher duct system resistance is encountered, the blower motor horsepower may be increased accordingly.

The units installed in the homes at Kings Point-Sands Point have a 1/3 hp blower motor with a built in bypass. This provides a 1200 cfm delivery for heating and 1800 cfm for cooling. The adjustment of the bypass for this differential is made by hand, but on larger (5 ton) systems it is operated automatically. A separate duct from the outside provides fresh air for makeup purposes and about 300 cfm is supplied for this.



A typical house *in Sands Point, L. I., that features all year air conditioning.*

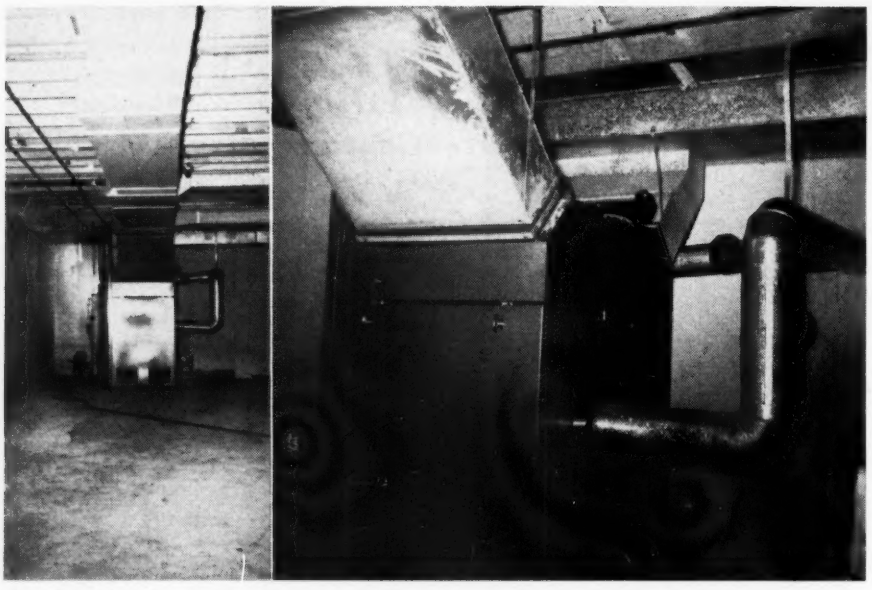
The low pressure gun type has conventional controls and electric ignition. The burner input is adjusted manually upon changeover from winter to summer operation or vice versa.

Jay Raddock and Louis Albini, the builders of the homes, are enthusiastic about the airconditioning which is being installed in their dwellings by Air Equipment Incorporated, Servel distributors for New York City. Albini, president of the firm, makes the statement that his company "feels that residential all-year airconditioning is a must." He believes that his outfit could not think of omitting this feature in their current plans nor would they try to build without including it, no matter what price range they were considering. Raddock in talking about the oilfired phase of the system made the observation that "the use of an oilfired absorption unit enabled the installation of such equipment to be made in areas where oil is the most economical and convenient fuel for airconditioning as well as for heating."

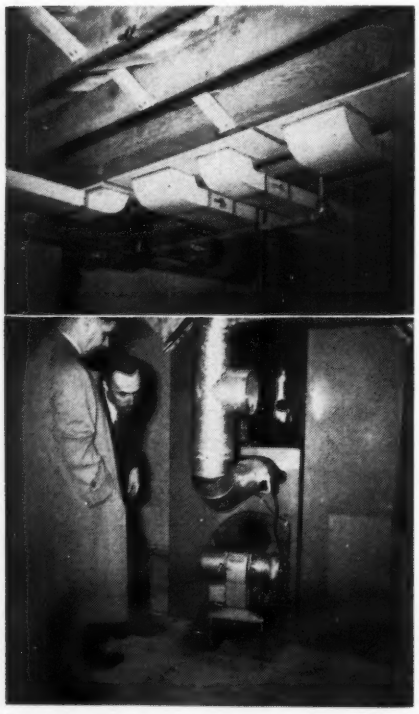
Jay Raddock *and Louis Albini, builders of the homes featuring summer and winter air conditioning, are enthusiastic about its prospects and believe that soon, combination heating and cooling systems will be an integral part of most new homes.*

A unique feature of the homes is that each contains two oilburners. A high pressure gun burner is used for the 80 gallon domestic hot water heater and the heating and cooling is provided by the low pressure job.

All ducts are insulated to raise efficiency and cut operating costs. About 15 outlets and 12 returns are installed in each home with low sidewall registers of new design used to disperse the conditioned air throughout the rooms. A thermostat setting of 75° F. is sug-

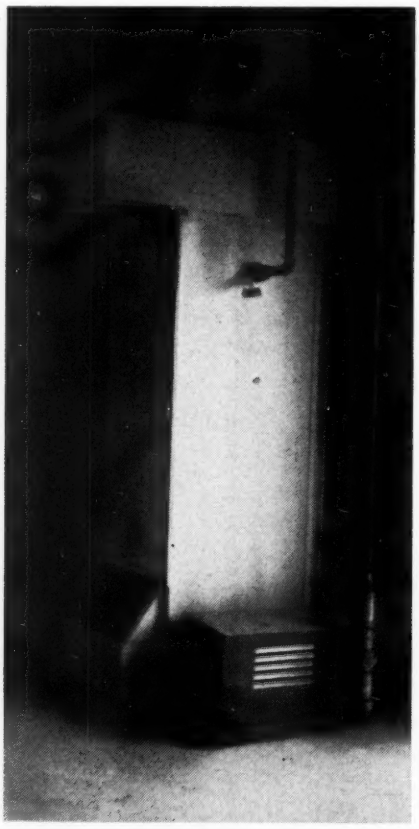


The length *of the return duct run to the year 'round air-conditioning unit is clearly shown here in the left-hand picture. On the left in the background is the high pressure gun burner used for supplying domestic hot water and on the right is the low pressure gun burner used for heating and cooling. A closeup of the unit (right) showing the main return duct on the left and the main supply duct on the right.*



Top: *Insulated ducts, runouts and risers help increase the operating efficiency of the all year unit.*

Bottom: C. A. Gruggell *of Servel and Frank Cooney of* FUELOIL & OIL HEAT's *Chicago office, take a close look at the low-pressure Combustioneer oilburner used with the Servel.*



This cooling tower *employed to conserve water used by the cooling side of the unit, is situated in a corner of the garage.*

gested for cooling and this provides 50% humidity for the 400 to 500 hours per year that cooling is required in that section of Long Island.

A corner of the garage houses the cooling tower, required to conserve the water used. It has a 90,000 Btu capacity which is more than ample for the jobs being installed.

The absorption refrigeration unit used in the Servel all year airconditioner is a hermetically sealed vacuum system that depends on vapor-lift action, differential pressures and the force of gravity for circulation of the refrigerant. It does not employ moving parts or pumps.

An important factor in understanding how it operates is the realization that water (the refrigerant in this case) acts under different pressures when heat is applied. At normal sea level atmospheric pressure, 14.7 lbs. per square inch, water will boil at 212° F., but at low pressures it will vaporize (boil) or condense at much lower temperatures. This is achieved in the unit by maintaining a vacuum. The different pressures within the unit are maintained by simple "U" traps.

In the direct expansion unit, steam heat is utilized as the motivating force. The principal parts of the cooling side of the unit are the: refrigeration generator; condenser cooling coil; absorber; and liquid heat exchanger.

All these parts and the interconnecting tubing are integrated as a hermetically sealed unit.

Unit Operates Under Vacuum

The entire unit operates under a vacuum at all times. The absolute pressure inside the generator and condenser is approximately 50 to 60 m.m. of mercury, and the pressure within the cooling coil and absorber is 8 to 10 m.m. of mercury. As atmospheric pressure (14.7 lbs. per square inch) measures 760 m.m. of mercury, it is obvious that the unit operates at a fairly high vacuum. Stated in another way, the pressures within the system are far below atmospheric pressure.

The system is charged with lithium bromide and water. Lithium bromide is the absorbent, water the refrigerant. The solution of these two is contained within the refrigeration generator.

As steam is applied to the refrigeration generator the heat causes the refrigerant (water) to boil out (evaporate) of the solution. A vapor-lift action is thereby created which raises the absorbent solution to the separating chamber above the generator.

In the separating chamber, the re-

(*Please turn to page* 136)

Six-month weather Forecasts

Three Seasons' Experience show useful Development for Degree-Days

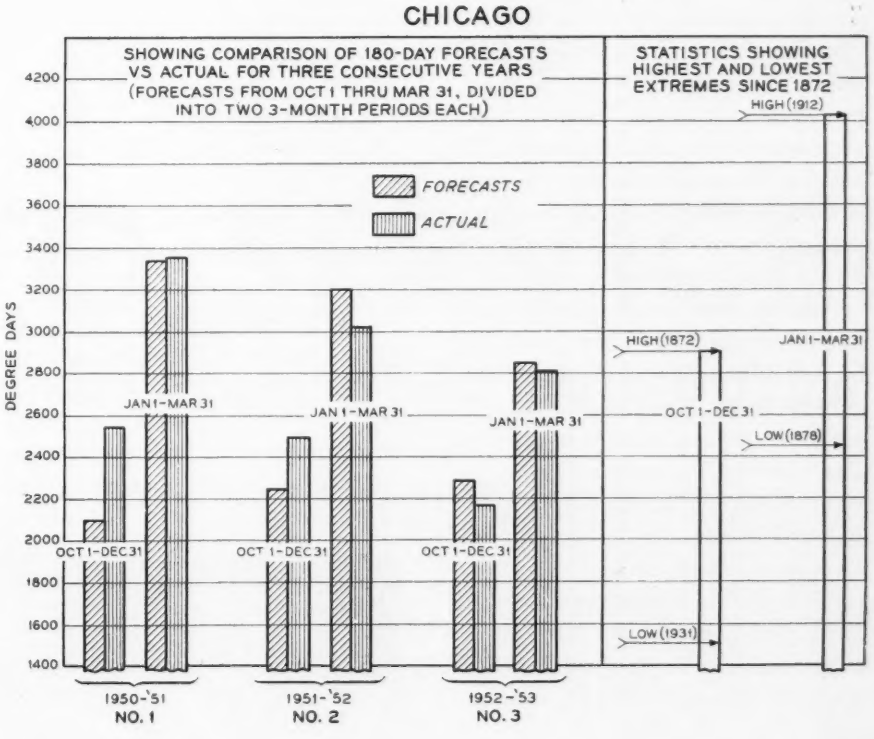
by
Lyle E. Brosché*

IT MIGHT BE SAID that the combined means and energy of the entire field of meteorology is directed towards a final goal; effective forecasts which may be applied for the good of man and his endeavors. Despite the rapid growth and huge gains of weather research at many levels which include complex probings of the upper atmosphere resulting in many satisfactory applications to culture and industry, the actual yield of forecasts with a reasonably high degree of accuracy is limited to relatively short periods.

At the present time, forecasts offered by the U. S. Weather Bureau are limited to detailed daily forecasts and more general five and thirty-day forecasts. The thirty-day temperature forecasts, according to the Weather Bureau, verify approximately 75% of the time within a range of one class of the predicted category. As an example, if "above normal" is predicted, the actual may be expected to be observed 75% of the time within the class range of near, above, or much above normal. Five classes are used to indicate departure from normal, which cover a range from the lowest to highest recorded extremes as follows: Much below normal, below, near normal, above, and much above normal.

These predictions, and others, are essentially based on such methods as airmass analysis and analogue data (a comparison and classification of historical weather patterns relating to prevailing conditions). However, while these methods are satisfactory for short-period results, they are inadequate for longer extensions of time. Application of these techniques to longer range prognostications result in greater variations from actual. Previously, claims to forecasting beyond thirty days have been found too inaccurate for application.

The Brosché Method is thus introduced as a solution to the problem of longer range temperature forecasting Designed with the needs of the oil industry in mind, this technique makes predictions of degree-days six months in advance. The method is distinctively unlike any of the procedures used for shorter range predictions, i.e., airmass and analogue methods. Limited solely to prediction of mean temperatures and conversion into degree-days, the six-month forecast is divided into two



Six-Month Forecasts

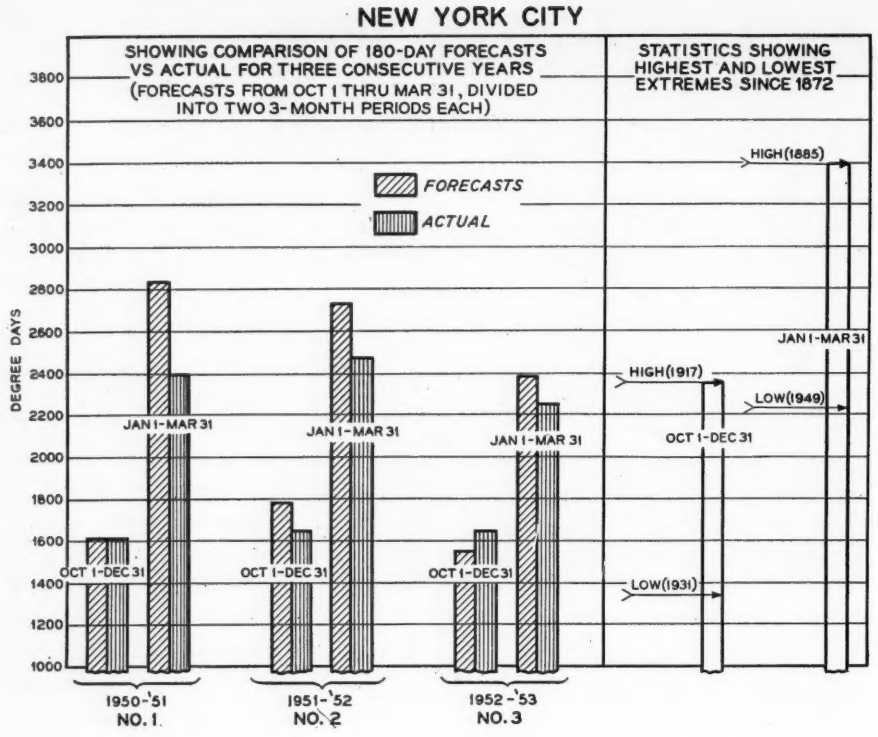
October 1-March 31

		DEGREE-DAYS			*Forecast Accuracy**
		Normal	*Forecast*	*Actual*	
CHICAGO—	Season '50-'51	5410	5440	5866	93%
	Season '51-'52	5410	5450	5519	99
	Season '52-'53	5410	5156	4990	97
NEW YORK—	Season '50-'51	4627	4450	3970	89
	Season '51-'52	4627	4510	4120	91
	Season '52-'53	4627	3930	3890	99

*Accuracy improved with time. Notice that in each instance the forecast was correct as to whether degree-days would be above or below normal.

*Brosché has been engaged in the meteorological profession for eighteen years. Most of this time was spent in various posts with Pan-American World Airways, including that of Senior Meteorologist-in-charge of the New York Transatlantic Forecast Section and during the war as Special Agent on loan to the U. S. Weather Bureau to supervise and instruct personnel in the preparation of Transatlantic forecasts for use by commercial and Allied military and naval aircraft operations. More recently, he has been engaged as Station Operations Manager for Pan-American, with complete responsibility for the entire operation at the airport. In this position he has been assigned as Assistant Station Manager at Idlewild International airport and as Acting Station Manager at Helsinki, Finland; Dusseldorf, Germany; Beirut, Lebanon; Boston, Mass., and Idlewild.

Among achievements in the meteorological field, Brosché originated and developed the "Average Drift-Correction Method" of air navigation, which is a meteorological-navigational technique for obtaining shorter flight times and thereby increasing payloads, while at the same time providing for safer aircraft operations. He has won two National awards in recognition of this achievement, namely: (1) First prize 1949 National Imagineers Contest, sponsored jointly by the National Association of Suggestion Systems and Supervision Magazine, (2) First prize National Meteorological contest sponsored by the Air Transport Association of America (1948).



periods showing the total of degree-days for each three-month period.

Many years of extensive research led to the discovery of this new approach four years ago. The process has since been developed considerably and has now advanced to the stage where it is believed refined sufficiently so that predictions may be used successfully by the fueloil industry.

Substantiation of the degree of accuracy obtained by this method may be found by reference to the accompanying charts. These show a comparison of the forecast actually issued with that observed for each respective period. Six-month predictions for the Fall and Winter seasons (October 1-December 31 and January 1-March 31 respectively) during the last three years are available in the charts for study. Forecasts for both the New York and Chicago areas are included, comprising a total of twelve three-month periods. The bar on the right in each case shows the total actual number of degree-days, and the left bar the forecast degree-days. On the far right of each chart the extremes, or maximum range, that have actually occurred since 1872, are shown. Some salient points of interest on the charts are outlined below:

1. A consistent and decided improvement in the accuracy of consecutive forecasts is evident for both the New York and Chicago areas. This reflects development of the method utilized over the past three years. The forecast error (deviation from actual) for 1952-1953 periods has been reduced to practically a negligible error.

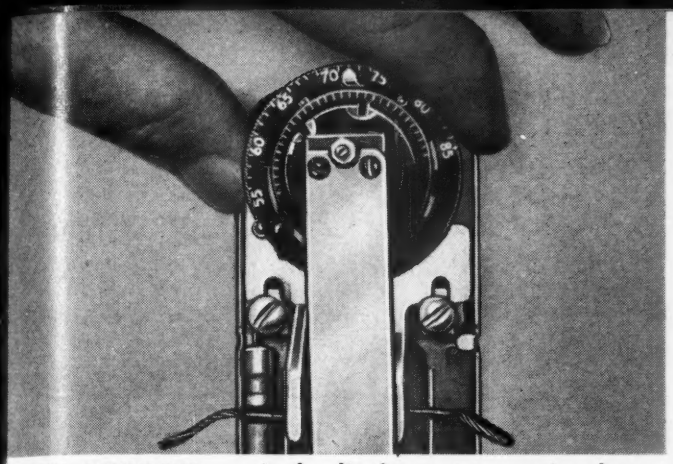
2. The general trend (above or below normals) has been accurately predicted.

3. With one exception, the second forecast period (January-March) has always verified generally as accurate as the first period (October-December). This shows that, in contrast to airmass and analogue forecast methods which become more inaccurate over longer-range periods, the Brosché Method retains the high percentage of accuracy throughout six-months duration.

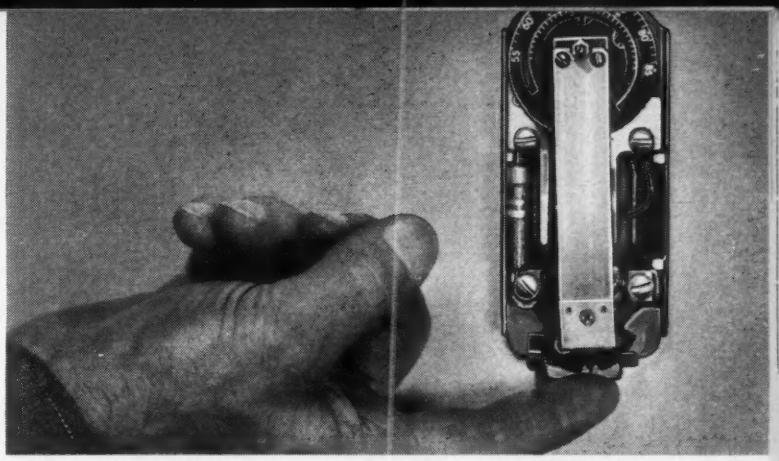
An interesting feature on the charts from a statistical standpoint is that the low extreme in degree-days for New York during the January-March period, 1949, is warmer than the high extreme in degree-days for October-March, 1917. The extremes for Chicago also show the same reversal, but occurring in the years 1878 and 1872 respectively. (Same condition may also be noted for New York and Chicago for 1953, in which the January-March figures are less than the high October-December extreme for each locality). This reflects a considerable contrast inasmuch as the January-March period normally is colder for each locality by some 1000 degree-days.

Also, in contrast to the general belief that winters are getting warmer than in the "old days," these extremes would cast a different light on the subject—at least for the midwest area. In comparison, warm periods during the cold seasons (October-December and January-March) were quite evident for New York during the latter 1870's and early 80's when Chicago was experiencing similar warm conditions and setting seasonal records. However, during the latter 1940's when New York was experiencing unusually warm weather during the cold seasons and setting seasonal records, the general temperature trend in the Chicago area was near normal or considerably below.

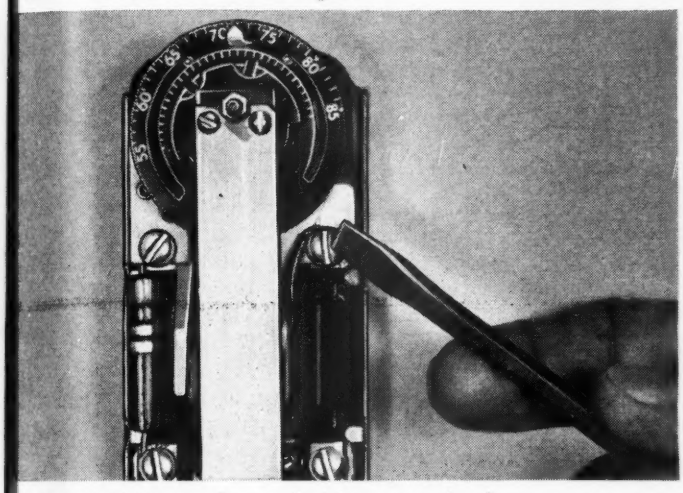
Desk & Derrick *clubbers of Northern New Jersey were guests on June 9 of Standard Oil Development Co. at luncheon and a buffet supper, with a trip to the company's laboratories at Linden in between. E. V. Murphee, company president, greeted the girls and told of the research work being done. The featured speaker of the trip was P. J. Byrne, Jr., Standard Co. engineer who talked from slides and movies. The clubbers president is Elinore McAdam of Coastal Oil.*



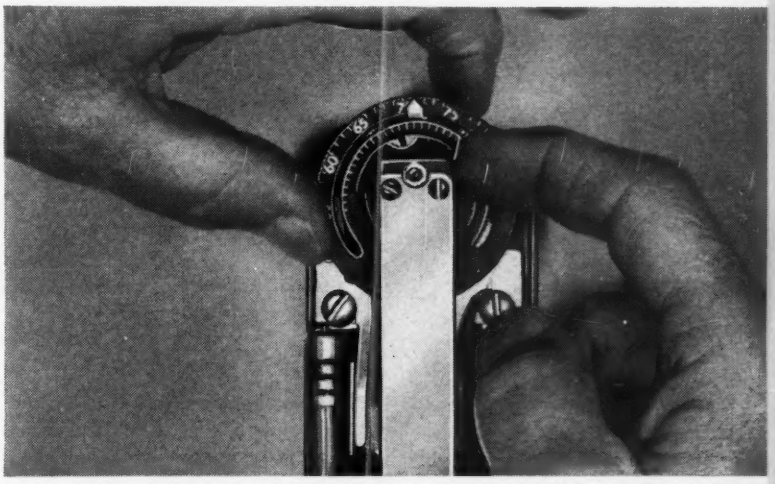
QUICK MOUNTING . . . simply slip thermostat operating element over two screws on base and tighten.



SIMPLE ADJUSTMENT . . . exclusive G-E comfort dial adjusts at the flick of a finger to change differential.



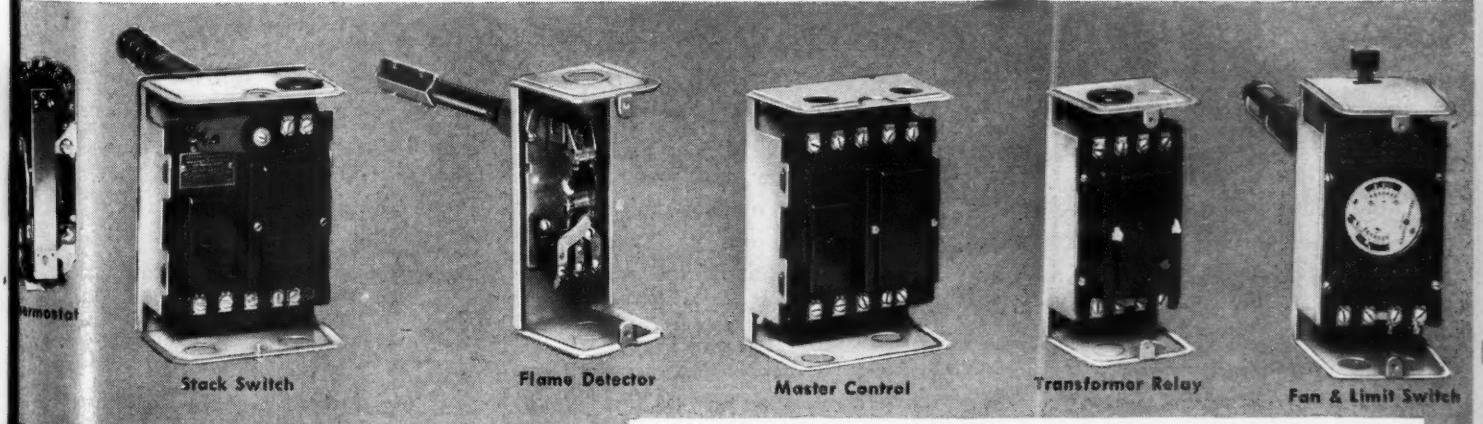
EASY WIRING . . . plenty of wiring space plus large easy-to-get-at screws mean fast, easy wiring.

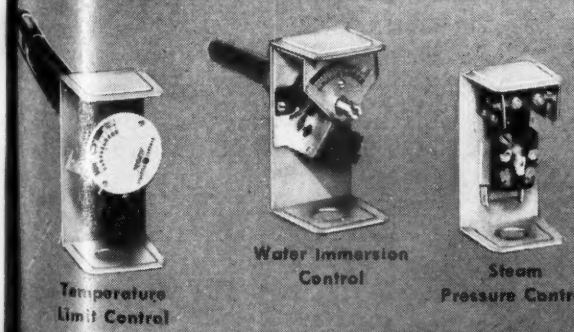


CALIBRATES WITHOUT TOOLS . . . hold temperature dial and turn inner dial cam until contacts close at temperature set.

EASY TO SERVICE!

complaints and unprofitable call-backs!





OIL BURNER CONTROLS

The Appliance Control Department of General Electric is devoted exclusively to developing and producing a complete line of controls for appliance and oil-heating manufacturers.

COMMERCIAL & INDUSTRIAL oilburning

One oilfired Boiler equals six coal Boilers

Draft Inducer triples work done by one Chimney, makes one-boiler Job practical

by

Jean L. Dupuis

IF AS AN OILBURNER dealer or salesman you had been told to take a look at a certain group of three apartment houses using 1,000 tons of hand-fired No. 1 buckwheat coal a year, probably you would have wound up pessimistic.

Drawbacks to converting these apartment houses to oil were many. The boilers were old and not particularly adaptable to oil. Each building was heated by two boilers, each in the realm of 50 to 60 horsepower nominal rating. Leaking, solid-packed mud legs of some of the steel boliers had been replaced. Firetubes had been replaced. To put the six boilers in even fair condition for oilfiring would take thousands of dollars, yet would wind up with six patched-up old boilers. Installing burners in these shoddy boilers would give you nothing to brag about.

To fire the six old boilers properly, you'd have to make pits under them. Some dealers who had looked at the job declared pitting was next to impossible because the boilers were installed on solid rock and were crowded in by other equipment, piping, and foundation walls.

The chimneys of the three apartment houses were not in good condition. In fact, years ago one had stopped providing sufficient draft. An outside steel stack had been put up to serve the two boilers. As an oilburner man, you would not look forward to using this outside steel stack. Chimneys and stacks provide draft only after they are heated. This exposed steel stack would chill after your burners stopped. Following a normal oilburner idle period, your two burners that used this steel stack would start up with no chimney draft.

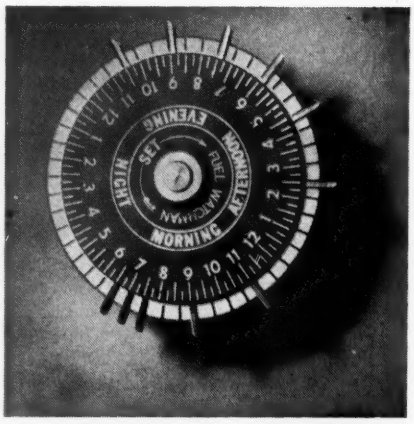


Photo #1 *shows one of the 24-hour program dials of the Fuel Watchman heat-control system. Eleven of the start pins are in place and can be seen clearly. This dial is set to provide a first run-for-heat at 6:30 A.M.—other start pins are set for 7:00, 7:30, 9:00 and 11:00 A.M. — and for 2:30, 4:30, 7:30, 9:00 and 10:30 P.M.*

The six boilers in these three apartment houses provided hot water in a fashion odd in the eyes of oilburner men, which presented another complication. Big hot water storage tanks were heated by steam coils. During the heating season, steam from the boilers simply flowed through the water-heating coils in the storage tanks. During the summer, hand valves in the steam mains of the one-pipe steam plants were turned off so that steam could not flow from the boilers to the radiation. The boilers were fired lightly to generate only the amount of steam needed for the hot water tanks.

Preparing your figures on converting the three apartment houses to oil, you'd notice they are big. After all, 1,000 tons of coal a year was used for heating and water heating. Two buildings are on Broadway, New York. Six stories high, they are side-by-side and their fronts occupy a full city block. In each of these two Broadway buildings are stores, some of which need great amounts of hot water, and 50 apartments. The apartments are unusually large—many include eight rooms. The rooms are oversize, not the kind you can figure need 30 square feet of steam radiation apiece.

The third building, down a side street from the first two buildings and separated from them by a wide areaway, also is six stories high and is made up of 50 apartments.

Going through the three buildings, you'd notice hundreds upon hundreds of one-pipe radiator vent valves, many painted-over and more than 15 years old. That would make you worry, if you are a dyed-in-the-wool oilheating enthusiast, for with one-pipe steam

There's more than one way to skin a cat. That applies two ways to this article on oilheating apartment houses.

First, as far as selection of equipment is concerned, there are many ways to skin the cat. Particular types and makes of equipment are mentioned in the article because they were used on this particular installation. But the article does not say that other types and makes of equipment would not have done as well. Readers should not interpret such articles as recommending particular makes of equipment. Men not experienced in big-job engineering should hesitate long and investigate well before selecting the equipment for large, complicated installations.

Second, the right way to skin this cat—not dreamed of by the burner dealers who surveyed the six coal boilers but who knew nothing of motorized draft—was to triple the capacity of one of the chimneys by installing a draft inducer. Skip the inducer idea, and you could not skin this cat properly.

This case is no isolated instance. Many owners of large buildings start out to buy oilburners, wind up buying what they really need: New oilfired boilers!

KEWANEE

STEEL BOILERS

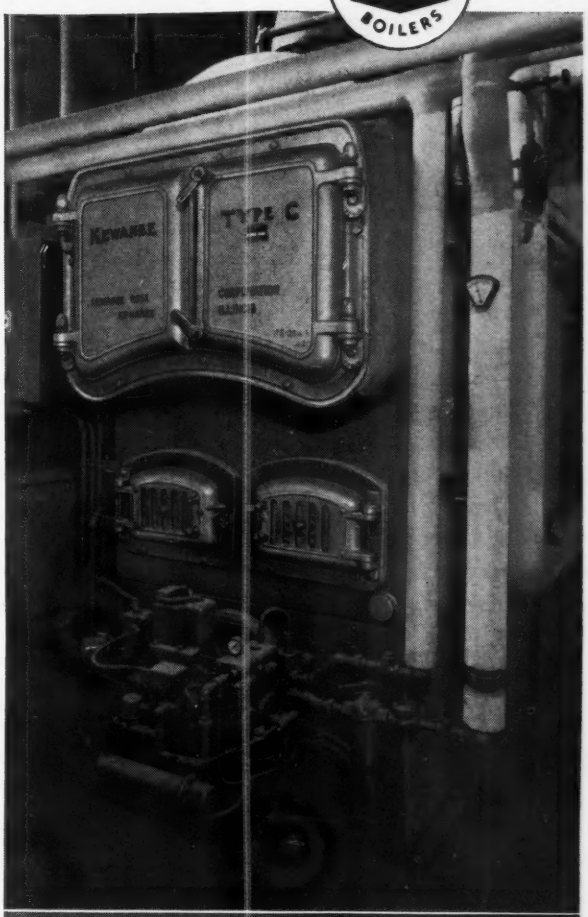
KEWANEE BOILERS

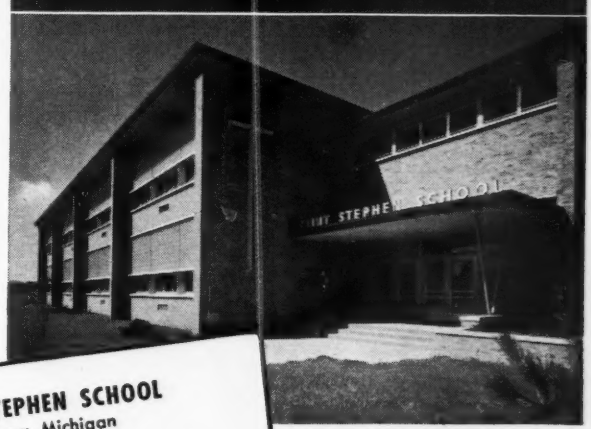
MORE ENGINEERING
MORE MATERIAL
MORE EXPERIENCE

MAKE THE DIFFERENCE

The irreplaceable part of every product is the name and reputation of the maker! Today, the name Kewanee stands for the best in steel boilers . . . as it has for over 80 years. And that is true because Kewanee puts more into them . . . more engineering, more material, more labor and more experience. Owners *expect to get and do get more from them.*

Kewanee Type "C", selected for Saint Stephen School, Saginaw, Michigan, is outstanding among boilers for low-pressure heating. The Kewanee *Corrugated Crown Sheet* adds strength and exposes more heating surface to the hottest part of the fire, so it is a very fast steamer. Compact in design it requires less floor space, yet operates with complete efficiency even when pushed well beyond its rated capacity.





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fuel oil & oil heat

heating, "everything is in the venting."

Installing an oilburner in each of the six old boilers would discourage you. Breaking out the rock to make the necessary pits under the boilers would be risky and expensive. You'd have to provide summer-winter hot water set-ups and with two old boilers in each of the three buildings this could be complicated and costly. You'd need three oil storage tanks, one for each building. You'd figure on three large-building heat control set-ups.

Some dealers called in by the owner didn't want the job, they indicated. The six old boilers would be too expensive to convert to oil; oilfired, they might not work well. None of the dealers who thought about converting the six boilers to oil developed any installation ideas they could honestly rave about and try hard to sell. Putting a vast amount of money into these old-fashioned boiler rooms was just too much like pouring the money down a drain. The salesmen, all having inherent honesty, recognized this and simply could not develop zest and high-pressure zeal in recommending it to the owner. Here was a job that an honest oilburner dealer, a sincere admirer of the best in oilburner performance, could afford to do without!

Although the owner intentionally exposed himself to oilheat enthusiasts, hoping they would develop enthusiasm about oilfiring his boilers and that some of this enthusiasm would rub off onto him, the six boilers went on with dreary coal-firing until the summer of 1952.

Then a bright, new idea suddenly flashed into the picture and displaced the dreary aspects with the hope that steps 100% modern and creative could be used to oilheat the three buildings. The new idea was to install one big oilfired boiler, brand-new and modern and ultra-efficient, to do the work of the six old hand-fired coal boilers. Here at last was something to become enthusiastic about!

Analytically, the owner put certain questions to himself, to the oilburner dealers who had surveyed the three buildings without having come up with the one-boiler idea, to fueloil company oilheat engineers, and to engineers he could trust to protect his interests. After all, if the one-boiler idea was the ideal answer to his problem of oilheating the three buildings, why hadn't it been suggested earlier?

One of the first objections to using one boiler to heat the three buildings had to do with chimney draft. With the buildings coal-heated, three chimneys were being used. Each was big enough for only the apartment house in which it was located. Using one big boiler, one of these chimneys would have to serve for all three buildings. The big boiler would be connected to a chimney one-third the size it needed according to its manufacturer! That wouldn't work!

First Solution Faulty

The first way out of this problem which was considered lay in locating the new boiler in the building having the unused masonry chimney and the outside steel stack, which had been put up years ago when the masonry chimney had given trouble. Repair the masonry chimney, twin it up with the outside steel stack so that the new boiler uses both. This first idea turned out to have its drawbacks. First, the masonry chimney was in exceedingly poor condition, so poor that the steel stack had been installed. Second, the areas of the masonry chimney and the steel stack came to a total which still was insufficient for the new big boiler. Third and as has been mentioned, an outside steel stack is poor for on-off firing because it chills quickly after a burner stops. Fourth, another of the three boiler rooms seemed a better location for the new boiler than the boiler room which had the masonry chimney and the steel stack.

The perfect answer to the chimney draft problem, it developed, lay in installing a draft inducer.

"Can you be certain that will work out all right?" asked several burner dealers who had not come up with the one-boiler idea and were wary of it. Here was a tip-off for the owner. These

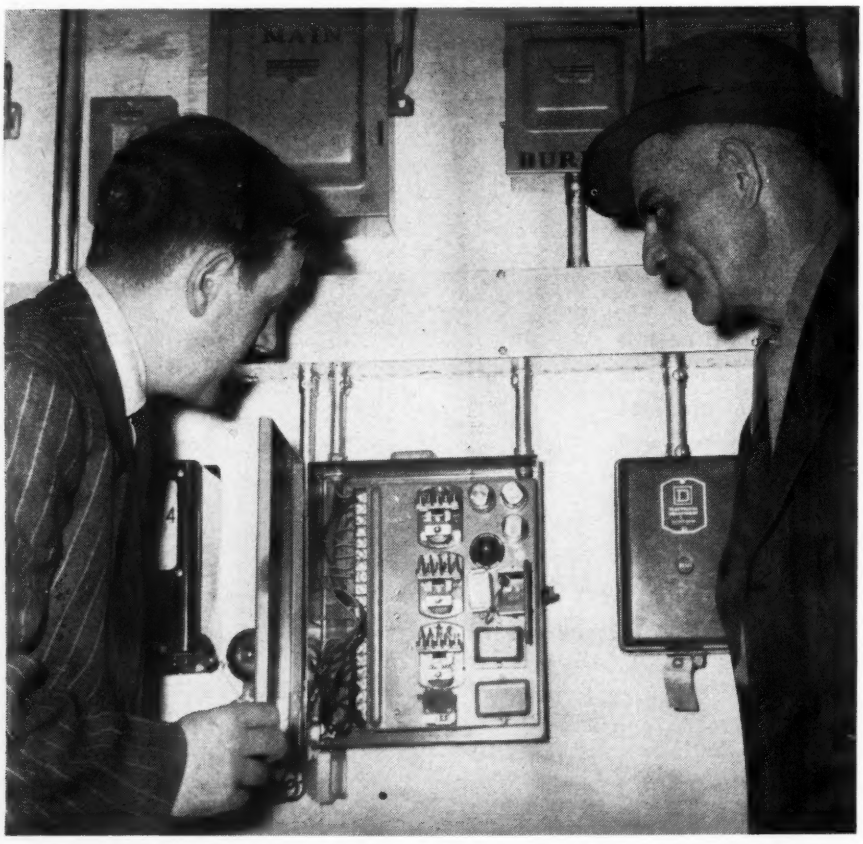

Photo #2 *shows a heating and building engineer looking at the insides of a Minneapolis-Honeywell electronic oilburner control panel, the R178 Protectorelay for industrial burners.*

dealers were without experience with draft inducers, knew nothing about them in fact. By this time the owner himself had obtained sufficient information about induced draft to make him 100% confident that a draft inducer was the correct answer to the problem.

"You can't heat three 50-family apartment houses, each equal to an ordinary 70-family apartment house, with one boiler," stated one oilburner man flatly. "Not with the old one-pipe heating plants you've got in these buildings!"

You won't be able to balance the heat in the three buildings."

Using Single Boiler

His argument caused concern. The location of the boiler had been decided upon, and the third building would be heated by a 6" steam line 250 ft. long. The concern about heating the third building as well as the two buildings near the big boiler was ended by (a) deciding to insulate the 250 ft. steam line—in part overhead and outdoors—with tremendously effective insulation, and (b) using two steam-main quick-vents with ½" venting ports at the load end of the long steam main to start out, and adding additional similar valves if this proved necessary later. The engineers planning this kept on saying, "venting is everything." They said the same thing in discussing the hundreds of old, painted-over radiator vent valves in the buildings. True, they told the owner, of the one-thousand-odd vent valves on the job, some did work. The buildings had been heated properly by coal. No need, then, to increase the cost of converting to oil—and reduce the chances of buying the new boiler—by buying more than a thousand radiator vent valves for all the radiators. Instead, be ready to install a few hundred vent valves after the oilburner was in operation. Start out with six dozen new vent valves on hand. When a radiator fails to heat properly after the on-off firing by the oilburner is started, equip it with the best new vent valve—engineered for intermittent firing—you can buy. The superintendents in the buildings will find out easily, during the first few

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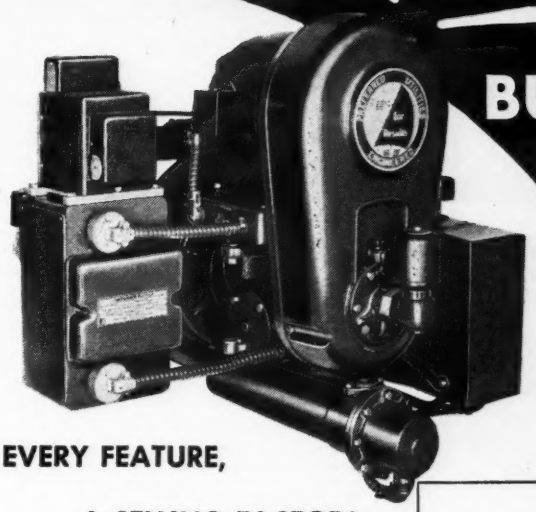

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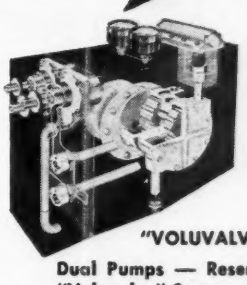

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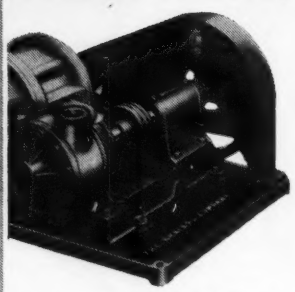

Class 60 PUMPS

Of the internal gear type, the "60" is machined to close tolerances—for maximum vacuum characteristics with heavy and cold oil. The outstanding design advantage is the ball bearing, V-belt reduction drive — connected to pump by means of loose coupling, which eliminates side deflection from pump shaft. Suction and discharge sizes from ½" to 2". Capacities, 75 to 2100 GPH; pressures to 100 psi.

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Adequate strainers for both suction and discharge service are essential on every heavy oil installation. Available with Underwriters Labels from ¼" to 4"; larger sizes up to 6".

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months, which old radiator vent valves need replacement. They'll be helped, for one thing, by tenants' complaining about underheated apartments and certain radiators' remaining cold while others heat properly.

The proponents of the one-boiler idea did not miss pointing out to the owner that converting the six old boilers to oil, as he first had in mind, would not produce especially low fueloil consumption. The old boilers, even fixed up, would always be plagued by fuel-wasting air leaks. Because of that and high stack temperatures, their flue gas losses would be high and their efficiencies low. The insulation on the old boilers had been inadequate to start out, now was in such bad condition the boilers couldn't be considered 25% insulated. Just as he had not bothered or spent money to make this insulation adequate when he used coal, the owner probably would not apply adequate boiler insulation after switching the old boilers to oil. In truth, they were not worth insulating effectively.

Increase Oil Consumption

"Oilfiring the six old boilers," the men behind the one-boiler idea said, "you'd be lucky to have 160 or 170 gallons of oil do the work of one ton of coal!"

"How many gallons of No. 6 oil will do the work of one ton of hand-fired buck No. 1 coal if I install the one big boiler?" the owner wanted to know.

The answer was about 130 gallons of fueloil per ton of coal burned previously—on the premise of a beautifully-efficient boiler fired by a beautifully-efficient oilburner, and with the job given all the help possible in terms of expert work of planning, installing, and servicing it, and providing it with the auxiliary equipment needed to minimize the fueloil consumption.

The owner was ready to go ahead on that basis. He bought a 300 horsepower Titusville boiler, Scotch marine type designed for oilfiring, fired by a Preferred Utilities burner rated for up to 100 gph. Equipped with a tankless heater of suitable size, this boiler provides ample hot water summer and winter for the 150 families and the stores in the three buildings. The first

Photo #3 *views the Preferred Utilities horizontal rotary cup oilburner, the heart of the entire oilheating set-up. To provide summer hot water, this runs a total of two hours a day. On coldest days, it runs a total of 16 hours a day. Firing rate of the 100 gph oilburner is adjusted to be about 80 gph.*

improvement the tenants noticed after the new boiler was put to use was perfect hot water for the first time since they had moved into their apartments. Naturally the job has a mansize auto-

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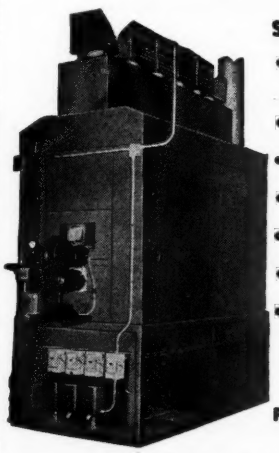

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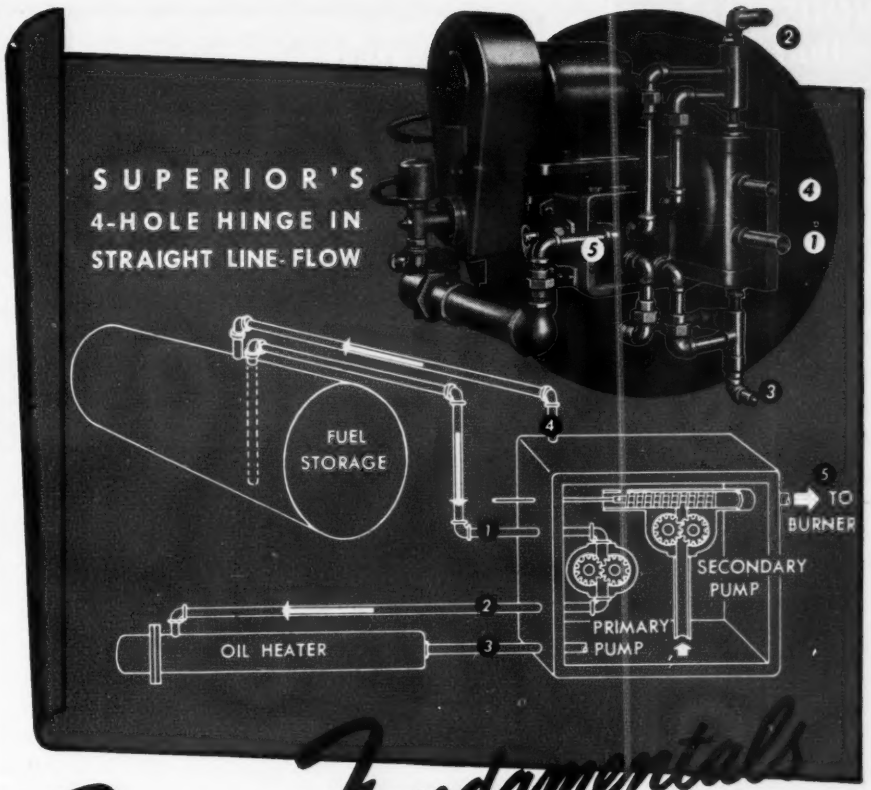
matic mixing valve to control the temperature of the hot water leaving the boiler room, and a hot-water-line thermometer on the output line of the valve to report on its performance.

High on the list of the auxiliary equipment needed to minimize the fuel consumption of such an installation is the draft control set-up. Taking no chances, in this case the owner bought program-type, over-fire draft control equipment. The equipment used was made by the Cleveland Fuel Equipment Company. It serves these functions:

First, and most important in minimizing the fueloil consumption, it controls the draft on the boiler. It does this by controlling the over-fire draft, the draft in the combustion space of the boiler. On this job, the over-fire draft is maintained at .12″ water. A draft gage arrangement equipped with electrical switches is affected by the over-fire draft, being piped for this. If the over-fire draft drops below .12″, a switch nudges an electrical control motor that moves the smoke outlet damper in the boiler's breeching. The damper opens a bit, increasing the over-fire draft to the proper level. If the over-fire draft becomes higher than .12″, the outlet damper closes a bit. With the boiler tubes clean or dirty, or with the fire small just after starting or large for normal running, the over-fire draft is controlled at precisely .12″ water. A large draft gage on the control panel of the installation (see the drawing) indicates the over-fire draft at all times.

Point Two

Second and also highly important in minimizing fueloil consumption, the Cleveland Fuel Equipment set-up closes the smoke outlet damper after the burner stops. The idea is to eliminate or minimize air-flow through the boiler with the burner idle, thus hold the heat in the boiler. Corking the boiler tight in this way is most important during the summer months when the burner is idle about 22 hours a day but the boiler is being kept at 180° to carry its water heating load. Naturally the tight-corking of the boiler breeching saves oil during the heating season



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- Burn any grade of oil. Also available with combined gas burner for any type of gas.
- Fully automatic in sizes to 500 bhp with dual ignition, and hi-low or fully modulating control.

Superior's 4-Hole Hinge illustrates the point. It has the effect of placing the primary pump (which is enclosed in the reservoir) between the fuel tank and oil heater. Oil is brought to the reservoir by suction and *pushed* through the heater. This system relieves the pump of the unnecessary strain of pulling cold oil through the heater, and allows unlimited heating of the oil. The hinge also eliminates the need of breaking connections when the burner swings out of firing position.

The 4-Hole Hinge is but one of the sound fundamentals which give Superior Rotary Burners the dependability and efficiency which result in dealer prestige and profit. You'll see more and more Superior Rotary Burners from now on. If you want to grow with them, write us today for details.

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TIMES TOWER, TIMES SQUARE, NEW YORK 18, N.Y.

also, for though the burner has fewer idle hours per day then, the boiler is hotter, simmering almost 24 hours a day during coldest weather.

Third, before the oilburner can start, the smoke breeching damper must be wide open. Added safety and smooth lighting are the results. Although the Cleveland Fuel Equipment set-up is arranged for wide-open breeching damper starts on this particular installation, it has a feature (not used here) that permits a different type of starting. It has a starting draft selector switch which can be set to provide partial opening of the outlet damper for starting—just enough draft for proper small-fire start-ups is provided. After the oil flame has lighted and this has been indicated by the burner's control system, the outlet damper can be moved by the CFE (Cleveland Fuel Equipment) Lectricarm drive unit that opens and closes it.

Fourth, this installation has a low-draft oilburner cut-off, delayed-action type. If the over-fire draft drops below a predetermined unsafe minimum—on this job below .09" because the regular draft is .12"—and remains that low for 15 seconds, the oilburner flame is turned off because the draft is insufficient.

The draft inducer used on this installation was provided by the L. J. Wing Mfg. Co. Don't lose sight of the fact that by tripling the work done by one chimney, the draft inducer makes this one-boiler job practical. Without an inducer, the one oilfired boiler could not be installed to do the work done previously by six coal boilers, for building a new chimney large enough for the 300 hp Titusville boiler would have been prohibitively costly.

M-H Safety Control Panel

The oilburner safety control panel is the R178 Protectorelay (Minneapolis-Honeywell). Electronic type, this monitors the gas pilot of the Preferred Utilities oilburner when the burner motor and gas-electric ignition system first are turned on. Thanks to electronic monitoring of the gas pilot, the shut-off valve of the burner cannot open until the gas pilot has ignited properly. After the flame has lighted properly and the gas pilot has been turned off, an electronic photocell monitors the oil flame in the firebox. The oilburner shut-off valve closes within about four seconds, if the photocell reports flame failure.

A large-building outside-weather temperature control system made by Fuel Watchman, Inc., was selected by the equipment installer to control the heat in the three apartment houses. Fortunately, the radiation in the three buildings is sized on the identical basis; it works out equally well in all three buildings to maintain steam pressure continuously from about 7:00 A.M. to 11:00 P.M. when the outside temperature falls below 18° F.

The first characteristic of the Fuel Watchman heat-control system used for this building is: When the burner is started because heat is needed, a hold-in relay snaps in with the result that the burner will continue to operate until stopped by a steam pressure control

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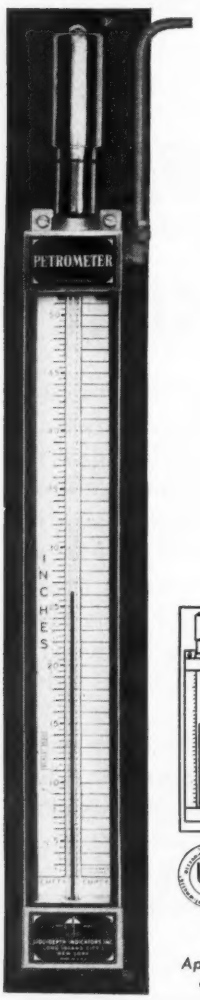

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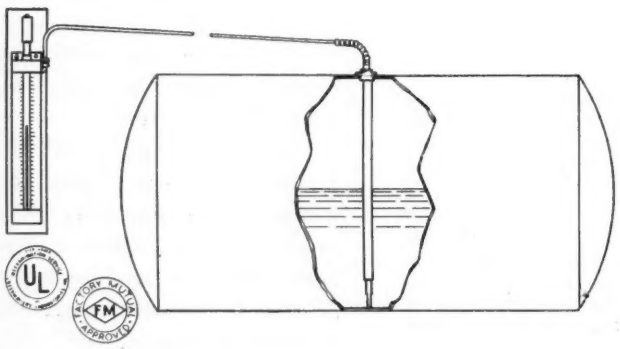

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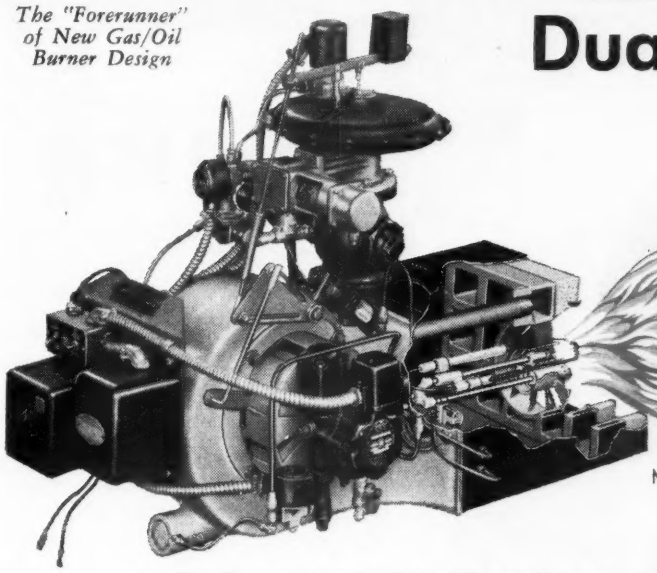

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TRUST ONE WHO HAS HAD EXPERIENCE — A RECOGNIZED TRADEMARK SINCE 1932

on the boiler. The pressure developed is the minimum which will heat properly every radiator in the particular heating system. That's one and a half pounds for this 300 hp Titusville boiler . . . because if on this job you stop the burner at a lower steam pressure, certain radiators will remain cold.

This first characteristic of the Fuel Watchman control system serves well on this particular installation. Because of it, each oilburner "on" period is of precisely the correct length of time. Shorter "on" periods would fail to develop one and a half pounds pressure on the boiler, and would result in the burner's stopping while some of the radiators were still cold—and others were underheated. Longer "on" periods would be unnecessarily long, and would give the penalty of needlessly bumpy heating. Bear in mind the first characteristic of the Fuel Watchman system used for this installation: Once the burner starts because heat is needed, it runs until one and a half pounds steam pressure is developed in the boiler.

The second characteristic of the Fuel Watchman system used in this case is: Six different 24-hour program dials are used, each for a different temperature range of outside temperature. Each can be fitted with starting pins, to start the burner as often as desired and at proper times during the day, to

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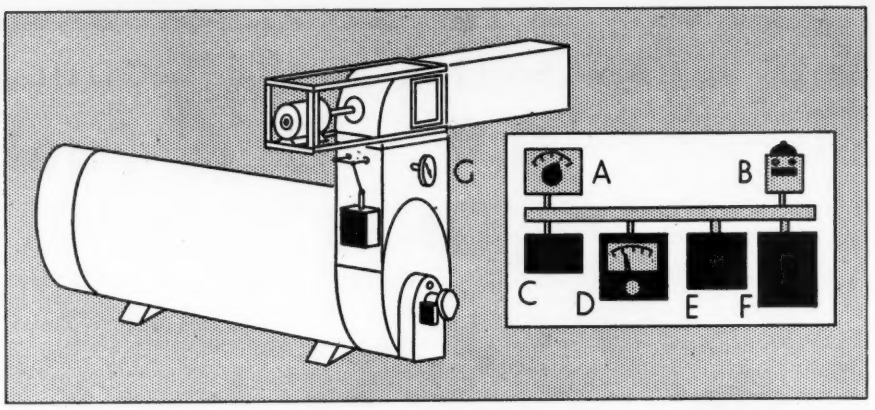

Schematic sketch *of the 300 hp Titusville boiler and its auxiliary equipment. Heart of the system, the Preferred Utilities burner, is dwarfed by the other, supporting equipment which was needed to provide good oilheating. "A" is the five-speed control of the Wing Draft inducer. "B" is the Paraprobe control and alarm panel which monitors for oil leaks in the Paracoil fueloil heater made by Davis Engineering Corp. "C" is the Cleveland Fuel Equipment program-type over-fire draft control panel; "D" is the over-fire draft gage. Minneapolis-Honeywell big-burner electronic control panel, the R178, is "E." The Fuel Watchman heat-control system is "F." Dial-type stack thermometer is "G." The black box on the side of the boiler's breeching is the CFE Lectricarm that opens and closes smoke-outlet dampers located above it.*

match the particular kind of outside weather. An outside bulb, affected by outside weather, decides which of the six 24-hour program dials serves to start the burner for "heat-on" periods.

Above 60°, the Fuel Watchman provides no "heat-on" periods. The burner runs only to keep the boiler at 180° for water-heating purposes.

Below 60° and down to 55°, the No. 1 program dial may be in control. It may have three pins, easily set in place by a serviceman, to start the oilburner for "heat-on" periods at 6:30 A.M., again at 11:30 A.M., and again at 6:00 P.M. That's three starts for "heat-on" periods for 55° to 60° weather. Each start is at a suitable time, selected by the expert who tunes and services the installation. Each start will result in the boiler's developing one and one-half pound steam pressure—the minimum pressure that heats all the radiators.

Below 55° and down to 48°, the No. 2 program dial may be in control. For the somewhat colder weather, this may provide starts for six "heat-on" periods (instead of the three starts of the No. 1 dial). Pins may be set by the serviceman to start the burner at 6:30 A.M., 8:00 A.M., 11:00 A.M., 4:30 P.M., 7:00 P.M., and 8:00 P.M.

Below 48° and down to 40°, the No. 3 program dial may be controlling,

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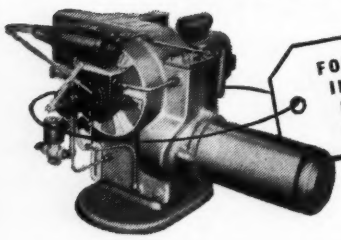
Many big fuel users pay for their HEV-E-OIL Burners with *one year's* fuel savings.

BIG PROFIT WITHOUT ADDED OVERHEAD

Why limit your selling effort to the crowded, highly competitive light oil burner markets. Get "king-sized" profits . . . more volume . . . new customers . . . by selling HEV-E-OIL Burners. Available in oil, gas, or combination gas/oil units. Write today for all the facts.

* Conservative . . . in a typical locality, actual figures indicate that for every $100 profit you make on a light oil installation, you can make from $400 to $500 on a HEV-E-OIL Burner installation.



Planned Promotional Material for you — includes displays, decals, newspaper advertisements, folders, mailing pieces and selling manual. Send for your copy.

BURNER DIVISION
CLEAVER-BROOKS COMPANY
Dept. H-379 E. Keefe Ave., Milwaukee 12, Wisconsin

COMMERCIAL & INDUSTRIAL oilburning

and may provide nine or more starts, as the service expert decides and at the times he selects. For colder and colder weather, the early morning start is earlier, and the last run evenings is later. For coldest weather, there may be a start at 3 A.M. or 4 A.M. to provide tenants with a spot of heat in the middle of the night, as well as to have the piping and radiation warm when the burner starts its regular morning run for early risers at 5:00 or 5:30 A.M.

No. 4 dial may control for outside weather below 40° and down to 32°; No. 5 dial for below 32° and down to 25°; No. 6 may control below 25°.

Dial has starting Pins

Each dial has in it the number of starting pins put in it by the control manufacturer, or arranged by the serviceman. Editing the control pattern is simple. A serviceman can take out pins or slip additional pins in place to decrease or increase the number of starts for a particular type of outside weather. That's a matter of seconds. After he leaves the Fuel Watchman, it follows the orders he left for it. For each of six different kinds of outside weather, it will start the burner for "heat-on" periods in complete accordance with the orders he left for it by fitting it with starting pins.

No. 7 dial serves a special function. It breaks the circuit of the hold-in relay at any desired time late at night, say at 11:30 P.M., and definitely stops the burner. If you want the burner to stop providing heat at 11:30 P.M., it will stop—even though at 11:29 it was running and had the intention of continuing until steam pressure developed.

This installation has not yet been in operation for one year, and the owner's records must, he says, cover a full year of operation before he can ascertain whether or not here 130 gallons of oil equals one ton of coal. The opinion of experts who have been studying the job closely is that up to now it's been doing well, as far as the 130 factor is concerned. If the permanently-installed draft gage and stack thermometer continue to produce excellent readings, and if the CO_2 and smoke instrument tests which are made periodically continue to prove the combustion excellent, this job should do better than the 130 basis. With No. 6 oil costing about 5.75¢ and No. 1 buckwheat coal costing $17 per ton, you can figure out the fuel savings. Remember these buildings used 1,000 tons of coal a year for heat and hot water.

❖

Q. Figuring domestic conversion jobs, where ordinary hand-firing is replaced by efficient oil firing with high CO_2 and stacks cooler than 650°, how many gallons of oil can I figure equal one ton of domestic anthracite?

K. T. U., Berwick, Pa.

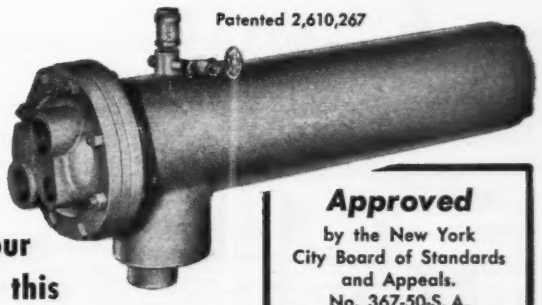
A. Many burner dealers use the thumb rule that makes 150 gallons of fueloil equal to one ton of coal. That's playing safe. Some dealers find 135 gallons of oil equal to a ton of coal. You'd better check the performance of local installations to gather data on this subject for yourself.

Get **DOUBLE* PROTECTION**

with... *Yula-trol*
FUEL OIL DETECTOR

and... *Yula* "YT"
"U" TUBE FUEL OIL HEATER

Patented 2,610,267



The *Yula-trol* is connected with a "probe" in the shell of the fuel oil pre-heater. Should the water be displaced from contact with the "probe" by oil or air, the *Yula-trol* instantly shuts off the heating unit and sounds an alarm.

The *Yula* "YT" "U" Tube Heater is designed to pre-heat No. 6 (Bunker "C") fuel oil efficiently and economically by use of hot water as the heating medium.

Approved by the New York City Board of Standards and Appeals. No. 367-50-S. A.

This outstanding *Yula* combination assures your oil burner installations this vital protection . . .

* By simultaneously shutting off the heating unit, sounding an alarm and flashing on a red light in case an oil leak occurs in the pre-heater.
* By acting as a Low Water Cut-off.

RESULT: Positive heating system protection at low cost.

Like all *Yula* equipment, the Yula-trol and Yula "YT" "U" Tube Heaters provide the maximum in efficient, economical operation at lowest possible cost. Get *Yula* efficiency . . . get *Yula* "Double Protection"

Other *Yula* Products

- Yula Straight Tube Fuel Oil Heaters
- Yula Suction Oil Heaters
- Yula Bayonet Type Oil Heaters
- Yula Type SS Conventional Heaters

FOR COMPLETE INFORMATION
WRITE . . . DEPT. FO-12

YULA WATER HEATERS, INC.
166 WEST 225th STREET, NEW YORK 63, N. Y.

LINE UP FOR
with Gilbarco's

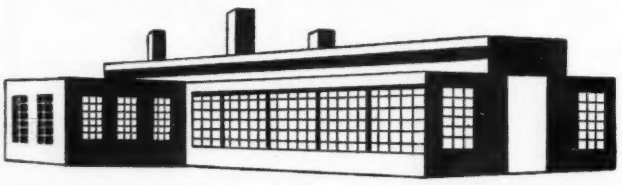
Get any job, big or small, with Gilbarco's *complete* line! From four-room basementless homes to three-acre factories—Gilbarco gets you the orders . . . *Equipment for every type and size of building* . . . all designed for fast, easy, inexpensive installation. Sell Gilbarco, the easiest to sell because it's the hardest to beat!

FOR THE VOLUME MARKET—

Gilbarco's easy-to-sell GCS Oil Burner is for average size homes. This rugged model has the patented Economy Clutch, the greatest sales-building feature in the industry!

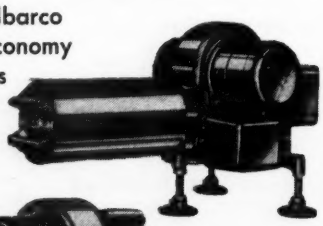
FOR LARGER HOMES—

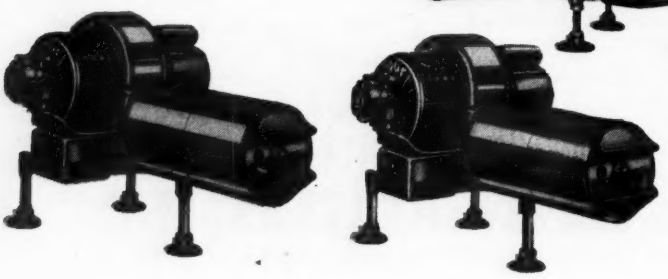
Gilbarco GC 1 and GC 2 models with the Economy Clutch are designed for really big home heating jobs. They're the ideal burners for large conversions and replacements!



FOR COMMERCIAL AND INDUSTRIAL JOBS—

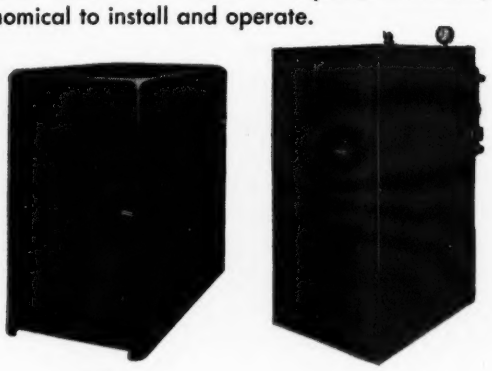
Available in three different sizes, Gilbarco Commercial Oil Burners with the Economy Clutch can handle jobs with capacities up to 10,000 sq. ft. of steam and 16,000 sq. ft. of hot water.





FOR STEAM AND HOT WATER—

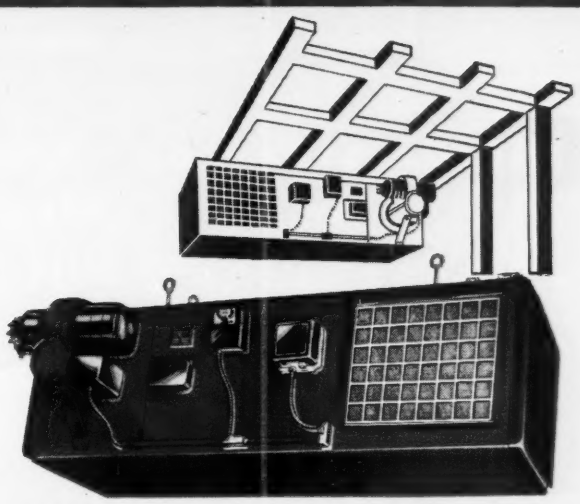
Gilbarco Boiler-Burner Units are available in welded steel or cast-iron models. Compact, attractive, economical to install and operate.



MORE BUSINESS
complete line

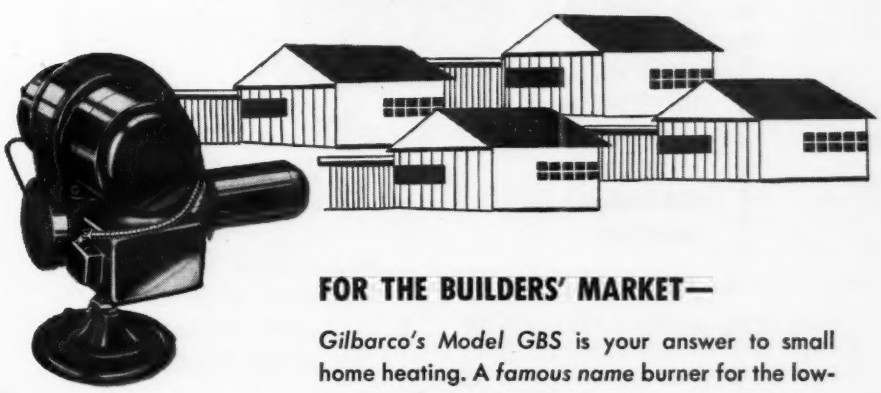
FOR SPACE SAVING COMPACTNESS—

Gilbarco Vertical *"Space-Saver"* floor model; 85,000 B.T.U. capacity. Uses less than 3½ sq. ft. floor area.



FOR CEILING SUSPENSION HEATING—

Gilbarco Suspended Furnaces are the answer for service stations, stores, garages, commercial buildings and multiple industrial installations. 115,000, 160,000, 200,000 B.T.U. capacity.



FOR THE BUILDERS' MARKET—

Gilbarco's Model GBS is your answer to small home heating. A *famous name* burner for the low-price market.

FOR ECONOMICAL HEATING—

Gilbarco compact *Warm Air Conditioners* are famous for easy installation and economical operation. GWA models are available in 115,000 and 135,000 B.T.U. capacities. GRF "Low-Boy" units come in 4 sizes up to 175,000 B.T.U. capacity.

Gilbarco

Gilbert & Barker Manufacturing Co.
West Springfield, Mass.
Toronto, Canada

fueloil & oilheat

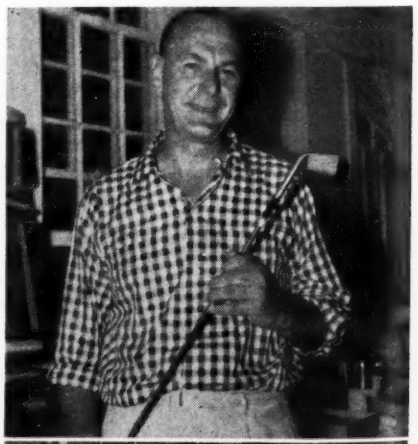
Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 18th.

Chicago Old Timers hold annual golf Outing

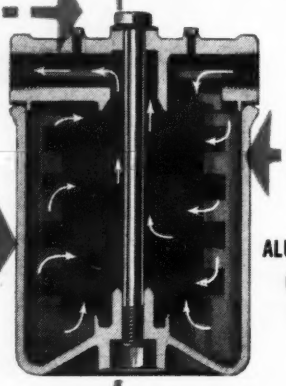
CHICAGO OLD TIMERS held their outing on June 20 at the Forest Hills Country Club, Rockford, Ill. With the temperature over 100, not many played golf. As a result all who did play won prizes. There were 45 members and guests in the party.

Left top, Charlie Bendix awarding the golf prizes in which the cup for low gross went to Hugh Courteol, shown in upper right. Below is Chuck Lang who won a new iron for next lowest and, also pictured below, is a group on the lawn. Seated are: John Westmont and Gordon Jarvis; standing are Ray Keifer, Doc Ford, Sam Olson and Bill Wenszell. Frank Cooney was awarded a stop watch with a suggestion that he spend his time at races instead of golf courses.



INSIDE story on trouble-free filtering

Eddington FUEL OIL FILTERS



CARTRIDGE REPLACED BY LOOSENING A SINGLE BOLT

DIE-CAST ALUMINUM CASE CANNOT RUST OR CORRODE

OIL SUBJECTED TO MANY SUCCESSIVE FILTRATIONS TO REMOVE EVERY TRACE OF SOLID AND GUM-FORMING IMPURITIES

LARGE SUMP COLLECTS WATER, SLUDGE, AND OTHER IMPURITIES —GREATER CARTRIDGE LIFE BETWEEN CHANGES

Made in two models: S-252 and S-254

EDDINGTON METAL SPECIALTY CO.

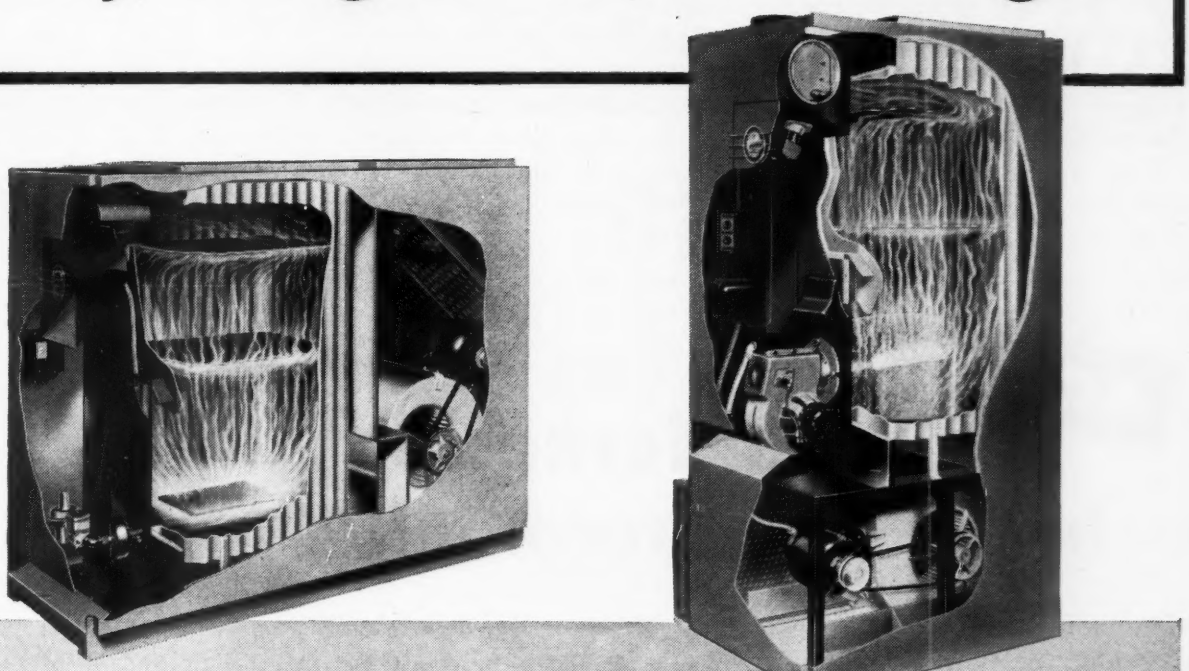
EDDINGTON, PENNSYLVANIA

FILTERS · NOZZLES · VALVES · STABILIZERS
AIR CONES · STRAINERS · INSPECTION MIRRORS
ADAPTORS · SERVICEMEN'S NOZZLE KIT

We'll be glad to send you complete information on any Eddington Products.

WRITE TODAY

Newly Designed Heat Exchanger



Warranted for 8 years!

Comfort Zone FOR PROFIT

Yes, Chrysler Airtemp now offers an *8-year warranty* on an entirely new type of heat exchanger!

The long-life, corrugated design in either 12 or 16 gauge provides greater heating surface in a smaller space. This results in far higher efficiency because of greater heat utilization. And there is no contraction or expansion noise possible in any Chrysler Airtemp furnace.

But that's not all! Whatever furnace model you sell, your best bet is Chrysler Airtemp because:

- You make extra profits . . . by selling winter heating AND at the same time selling summer cooling. Or—install summer cooling at a later date, if customers prefer.
- Your selling job is easier . . . because people have confidence in the quality of Chrysler Airtemp products!
- National advertising creates prospects for you! Millions of people are getting the Chrysler Airtemp message every month.

Get the facts on this valuable Chrysler Airtemp franchise today. See how heating AND air conditioning can double YOUR profit opportunity!

Chrysler Airtemp

HEATING • AIR CONDITIONING
FOR HOME, BUSINESS, INDUSTRY

AIRTEMP DIVISION OF CHRYSLER CORPORATION
DAYTON 1, OHIO

fuel oil & oilheat

Airtemp Division of Chrysler Corporation F&OH-7-53
P.O. Box 1037, Dayton 1, Ohio

I would like to know more about Chrysler Airtemp's franchise arrangements.

Name_____

Address_____ Phone_____

City_____ Zone____ State_____

Five local Service Manager Clubs join national Group

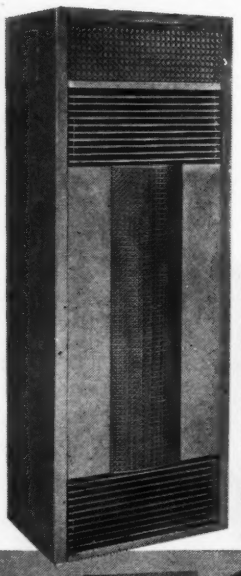
MEMBERS of the Service Managers' Clubs in Philadelphia, Washington, D. C., Baltimore, Boston and New York, have voted to join the newly formed National Association of Oil Heating Service Managers. Membership now totals 250 managers in the five represented cities.

The National organization was formed in New York in March 1953. Plans are now being formulated for the next meeting to be held in Philadelphia this September.

Officers of the group are: president, Hugh W. McKee, Massachusetts Wharf Coal Co., Cambridge, Mass.; vice president, John Engel, C. Hoffberger Co., Baltimore, Md.; secretary, Joseph Matachinskas, Brooklyn Cornell Utilities, Brooklyn, N. Y.; treasurer, Jack Davidson, Cities Service Oil Co., Bala-Cynwyd, Pa. and membership chairman, Ralph Iglehart, General Automatic Fuel Oil Co., Baltimore 13, Md.

H.C. Little

oil wall furnaces break sales records!



H. C. Little No. 85 Dual Wall Furnace for installation with brick chimney or patent flue. 65,000 BTU/hr. output. (Model No. 60, with 40,000 BTU/hr. output, also available).

Living room side of furnace (below) has large vertical radiant panel, plus return-air-intake and warm-air-output grilles. Back of unit (see hall view, right) also has intake and output grilles.

You ought to find out what they can do to boost sales for YOU! From New York to Seattle they're breaking all sales records—the "hottest" furnace on the market today!

COMPACT DESIGN—
COMPLETE FACTORY ASSEMBLY—
EASY INSTALLATION—
NO HEAT DUCTS NEEDED—
SILENT BURNER—No moving parts—
100% AUTOMATIC OPERATION—

Protected dealer franchises available. Write Dept. F-7

DISTRIBUTORS IN 18 PRINCIPAL CITIES—WAREHOUSE STOCKS IN KEY DISTRIBUTING AREAS

H.C. Little Burner Company, Inc.

25th Anniversary H.C. Little Burner Co Inc.

Head Office: San Rafael, California

Bruce K. Brown addresses Kansas City Oil Men's Club

BRUCE K. BROWN, president, Pan Am Southern Corp., New Orleans, La., was the featured speaker before the regular monthly meeting of the Oil Men's Club of Kansas City, held at the Hotel President, May 18.

Brown told the oil men that they must convince their fellow citizens of the correctness of three concepts: One, that petroleum is a very large business; Second, that the petroleum industry serves the public well with ample supplies at low prices because it is a free enterprise and third, that, instead of being a monopoly, the petroleum industry is highly competitive. "If we succeed," he added, "we can win and hold their admiration and respect. If we fail, our industry can not avoid getting into trouble."

Discussing some of the "trouble," Brown said, "Year after year petroleum is 'under investigation.' Obviously, these investigations are largely repetitive. Even the dynamic petroleum industry, working at top speed, does not change fast enough to provide 'all new acts' for each circus performance. We have nothing to fear from such investigations, provided we hammer away at the three basic points."

Contrasting the petroleum industry to some others, Brown pointed out, "Unlike the electric power industry, our industry has not been subject to competition from government-owned installations. Unlike the railroads, we have not been hamstrung by a multitude of restrictive regulations by the Interstate Commerce Commission. Unlike agriculture, our industry has not had to live under the threat of wide price fluctuation caused by mass purchases and sales of surplus commodities by the federal government. Petroleum products would not be so plentiful and cheap as they are today except for the fact that the industry has not been overregulated."

Design Problems and Lectures occupy short course Program

HEATING OF A MOTEL, including sizing of the equipment and piping, was one of the class room design problems

IT'S EASY TO SELL

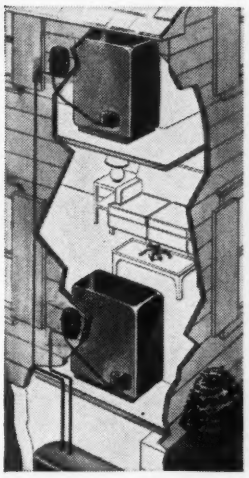
these New, Improved A-P OILIFTERS and TRAP-ITS

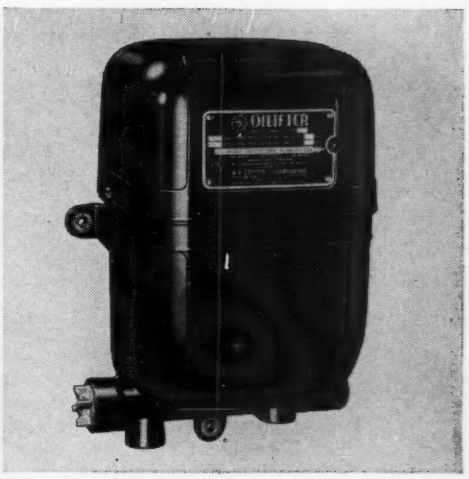
Sell freedom from fuel handling!

Every space heater customer is a sure prospect for the clean, easy fuel handling he'll get with this new model A-P Oilifter. Yes, here's a dependable, fully automatic oil supplier that saves time, steps and drudgery.

The A-P Oilifter pumps fuel from a submerged tank up to a furnace or from a basement or ground-level tank to a heater on the first, second or third floor, up to 25 feet.

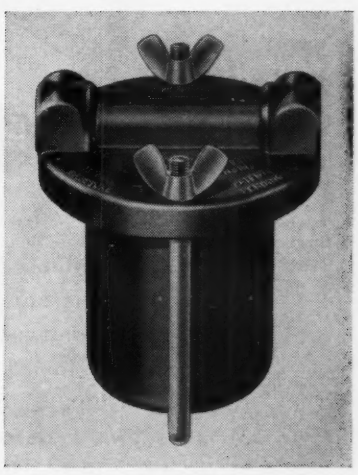
Model 356 features increased capacity, mechanical safety-float protection, automatic safety cutout switch, integral strainer and highly efficient pump. Requires no overflow pipe.





Sell freedom from burner failure due to dirty oil!

Here's a type of "insurance" you can sell every oil heating customer — the new Model 243 SY A-P Trap-it. You sell insurance against the danger of burner failure due to dirt, moisture and other impurities in oil . . . insurance against flame failure, erratic fuel flow, oil leakage and sluggish operation . . . and insurance against costly service calls. Easy-to-clean, lifetime strainer.



A-P CONTROLS CORPORATION

DEPENDABLE *Controls*

For Air • Oil • Gases • Refrigerants

2458 N. 32nd Street, Milwaukee 45, Wisconsin
In Canada, A-P Controls Corp., Ltd., Cooksville, Ontario

in the Seventh Short Course on Hot Water and Steam Heating Systems held at the University of Illinois, Urbana, Ill., June 15 through 18.

The course was conducted by the Department of Mechanical Engineering of the University of Illinois in cooperation with The Institute of Boiler and Radiator Manufacturers. The short course is designed to be a continuation of the I-B-R School of Modern Heating.

Other design problems included: snow melting, panel heating and the heating and ventilating of a school building. The latter covered the design of a system for the present building as well as future expansion.

Included in the course was a tour of the I-B-R Research Home and other heating research facilities at the University of Illinois.

Lecturers brought the students up-to-date on the latest results of the research program including summer cooling with water systems, panel heating, and heating of domestic water.

The Thrifti-Fier is found only on a HERCO

HERCOS HOLD UP "... trouble free, economical service from one year to the next" is the report of dealers and customers alike. The strong reasons WHY are found in the quality of design and manufacture of a Herco. Nothing but the best goes into a Herco . . . to boost your sales, your profits, your customers' satisfaction, your reputation. Write for catalog.

Herco Oil Burner Corporation
Lancaster, Pa.

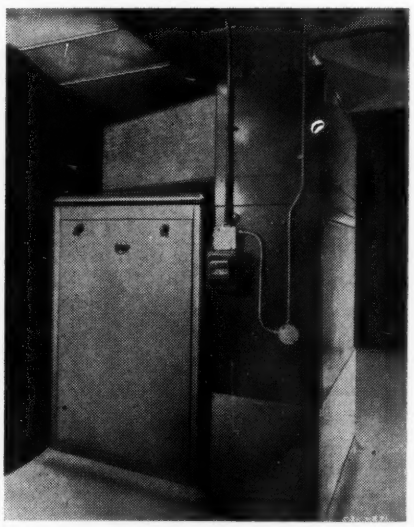
OIL THRIFTY HERCO

Manufacturers' Activities

Airtemp Unit featured in House and Garden's 1953 Home

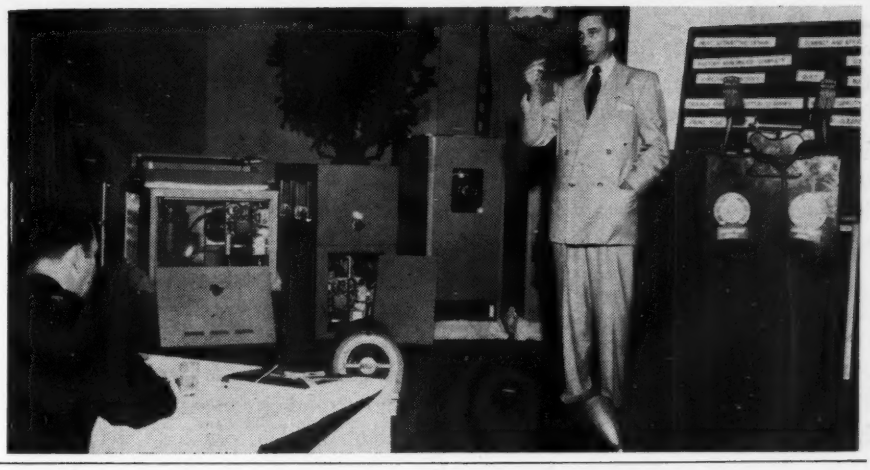
A CHRYSLER AIRTEMP five-horsepower "packaged" residential air conditioner and an Airtemp oilfired, forced warm-air furnace comprise the year-around unit in *House and Garden* magazine's 1953 Home of Ideas located in Bryn Mawr, Pa.

The Airtemp unit has an electrostatic filter which purifies all of the air passing through the system before it is distributed in the home. A water-cooling tower is located behind the building. Under normal conditions, 90 per cent of the water used to cool the refrigerant is re-used.



Shown above *is a Chrysler Airtemp oilfired furnace, manufactured by the Airtemp Div., Chrysler Corp., Dayton, Ohio, which is connected to a five-horsepower Airtemp "packaged" residential air conditioner. The high-capacity furnace blower draws warm air from the home through the electrostatic filter, located behind the furnace and air conditioner, which removes dust, pollen and other harmful particles. The cleansed air then is blown through the cooling coil in the upper section of the air conditioner, where it is cooled and excessive moisture is removed before it is distributed throughout the home. A cooling tower located outside the home returns approximately 90 percent of the water used to the air conditioner.*

The Airtemp system uses the furnace



More than 160 Airtemp dealers *in New York attended a special preview of the new line of central-type air-cooled residential air conditioners now being made by the Airtemp Div., Chrysler Corp., Dayton, Ohio. Pictured above is Malcolm Bard, eastern sales manager, who in a talk before the group, predicted that the coming year will be the greatest in air conditioning history. New units demonstrated were, left to right, the custom air-cooled residential air conditioner, packaged air-cooled residential air conditioner, hi-boy gasfired furnace and, foreground, the Airtemp dehumidifier.*

blower to draw warm air from the home. The air passes first through the filter, then through the furnace to the top half of the air conditioner where the cooling coil is located.

As the air passes through the cooling coil, excessive moisture is drawn out. Then the cool, dry air is distributed throughout the home from slotted-vane, high-wall registers.

An interlocking thermostat controls both air conditioning and heating operations. Under normal conditions, indoor temperature remains at a chosen setting in the 72 to 78-degree range.

New sales Appointments made by Standard Oil Co. (Indiana)

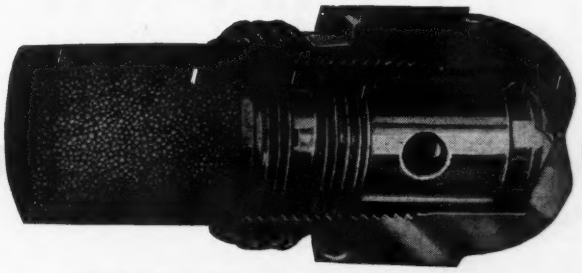
SEVERAL NEW APPOINTMENTS to advanced positions in the sales department, Standard Oil Co. (Indiana) have been announced.

C. C. Inglefield, manager of Standard's South Bend, Ind., sales field, has been promoted to assistant general manager of operations, a new position, at the company's general office in Chicago, Ill. He now has charge of all operating activities in the sales department, including supervision of the sales operating department and the construction engineering department.

R. E. Lee, manager at Decatur, Ill., has succeeded Inglefield at South Bend. H. L. Poole, assistant manager-reseller at St. Louis, Mo., has been promoted to manager at Decatur, succeeding Lee and C. E. Beatty, assistant manager-reseller at Peoria, Ill., has been transferred to the same position at St. Louis to succeed Poole. H. F. Riedel, sales manager-reseller at the general office in Chicago has been appointed assistant manager-reseller at Peoria, succeeding Beatty.

PULSATION TROUBLE?

LET *Monarch* HELP YOU!



HERE IS WHAT YOU NEED:

1. Monarch F-80-AR series 80° angle nozzle.
2. Recommended Monarch F-57 Air Cone and H-451 Stabilizer.
3. Solenoid shut-off Valve for nozzle line.

Set the Monarch equipment according to our recommendations in catalog "O" and see for yourself that *results* are obtainable!

These combinations have been proven by actual use in thousands of installations over a period of years. They will positively minimize if not completely cure ordinary running pulsation so prevalent in many small highly restricted units.

Do you have new Catalog "O"?

"48" Nozzle Box

Don't jumble your nozzles loosely in your tool box like "nuts and bolts" if you expect them to be usable. Carry as many as 48 nozzles securely in this sturdy, compact steel box.

Nozzle-Firebox Slide-Chart

No more digging through catalogs for proper nozzle capacities for certain loads, correct fire box sizes for different firing rates, or nozzle capacities at different operating pressures. This pocket slide-chart gives all these (and more) figures at a glance.

DEALERS: Buy from your Monarch Jobber

MONARCH MFG. WORKS, INC.

2503 E. ONTARIO ST., PHILADELPHIA 34, PENNA.

Canadian Sales Agents: (Except B.C.) Canadian General Filters, Ltd., 2679 Danforth Avenue, Toronto 13
Central and Southern Europe: A Coutau, Rue de la Soie 16, Geneva, Switzerland

A. C. Bradley, assistant manager-consumer at Joliet, Ill., has moved to the same position at St. Louis, succeeding J. A. Lampe, who has been transferred to other duties. J. R. Richardson, sales manager-consumer at Peoria, has been appointed assistant manager-consumer at Joliet, succeeding Bradley.

Atlantic's distributor Plan launched at Meeting

NINE DISTRIBUTORS of The Atlantic Refining Co., Philadelphia, Pa., who have been elected members of a policy committee representing all of the company's distributors, met with Atlantic management representatives, June 18, at the Atlantic Building in Philadelphia. This will be the first step to put into effect the new supplier-distributor relationship program inaugurated by the company last February.

Current problems in the field were discussed and a course of future action was planned at this session.

Members of the policy committee who attended the session were:

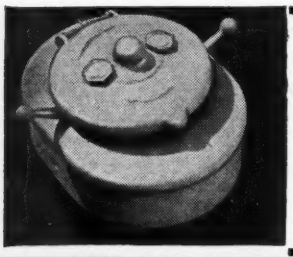
Sam Bohlen, Snyder Oil Co., Orrville, Ohio; S. D. Bryan, Bryan-Cooper Oil Co., Raleigh, N. C.; J. E. Colvin, Colvin Oil Co., Jesup, Ga.; M. D. DeTar, Aero Oil Co., New Oxford, Pa.; L. B. Dulin, Jr., Culpeper, Va.; Sam Pearl, Pearl Oil Co., Rockville, Conn.; Dwane E. Ringer, Ringer Independent Oil Co., Confluence, Pa.; Leo Tagland, Twin County Oil Co., Bethlehem, Pa. and William H. Van Voast, Tryon Oil Co., Johnstown, N. Y.

H. H. Ingersoll, assistant general manager, domestic marketing department, headed the Atlantic group attending the meeting, which included a representative from each of the company's six marketing regions.

FOR QUICK-OPENING, TIGHT-CLOSING, POSITIVE-LOCKING MANHOLES

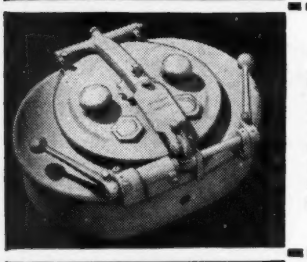
SPECIFY "Manholes by Philadelphia Valve"

no matter who builds your tank trucks



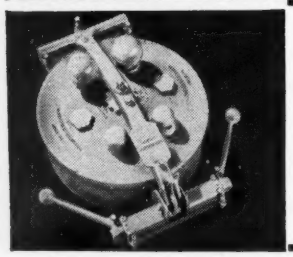
Standard Manhole

Size 12" x 16" with 6½", 8", or 10" fill opening. A slight turn of locking ring opens and closes cover.



Self-Closing Manhole

Size 12" x 16" with 10" fill opening. Self-closing, with positive locking device. Opened by raising lever on either side.



14" Diameter Self-Closing Manhole

For heavy fuel-oil tanks. Self-closing, with positive locking device. To open, lift either lock arm and raise cap.

Write the words "Manholes by Philadelphia Valve" into your order. These quick-opening manholes are absolutely tight. They surpass every fire underwriter's standard. They open and close easily and quickly. They are built to outlast the tank.

Each type of manhole is simple, strong, and foolproof. Covers are leakproof. Covers and plugs are of malleable iron or heat-treated aluminum. No cast iron is used. "5-in-1" vents automatically close if truck upsets, and will release under 6 lbs. pressure to prevent explosion in case of fire. Gaskets are easy to keep tight.

Philadelphia Valve manholes are standard with many major oil companies from coast to coast. Make them standard on *your* tank trucks, too!

Send for catalog 170 for descriptions and engineering drawings of all Philadelphia Valve Company products.

PHILADELPHIA VALVE COMPANY

3413 Aramingo Avenue, Philadelphia 34, Pa.

Pacific Coast Distributors:

Oil Marketing Equipment Co., 325 Fremont Street, San Francisco 5, California
Howard Supply Co., 5125 Santa Fe Avenue, Los Angeles 11, California

Taco Heaters holds two-day Meeting for sales Personnel

TACO HEATERS, INC., Providence 2, R. I., recently held a two-day meeting of its regional sales staff and home office management at the Wayland Manor Hotel in Providence. Company products, manufacturing and sales techniques were discussed.

R. H. Chaffee, sales manager, conducted the meeting which featured addresses by J. R. Murphy, vice-president in charge of sales; J. Balter, advertising manager; R. T. Angevine, assistant manager of heating manufacturer's sales and W. E. Johnson, assistant to the sales manager.

Wheelco announces Additions to its sales and service Group

WHEELCO INSTRUMENTS DIV., Barber-Colman Co., Rockford, Ill., has announced the addition of the following factory trained engineers to the Wheelco sales and service organization.

Chicago, Robert Unger, service engineer; Detroit, Harold L. Dirkers, sales engineer and Leonard V. Bloom, service engineer; New York, William E. King, service engineer; Boston, Lawrence S. Holbrook, service engineer and Robert Hemman, sales engineer; Rockford, Scott R. Babcock and Clyde Person, service engineers.

Petro holds service School on industrial Oilburners

SIXTY-FIVE MEN, including 11 engineers and service men from the Standard Oil Co. (Ohio), attended a service and installation school on industrial

oilburners sponsored by Petro, Cleveland 11, Ohio, during the week of May 20.

The school, supervised by Jess R. Crews, Petro sales manager, was designed to acquaint distributors throughout the Middle West, East, and South with the most recent changes in Petro oilburner design and with the most satisfactory methods of installing and maintaining heavy fuel oilburners.

Charles A. Schrade, chief engineer; G. T. Kaufman, field engineering manager and T. M. Kuttroff and Walter Temple, field engineers, conducted parts of the program. Guest speakers included J. F. McCauley, Mercoid Corp.; E. P. McHenry, W. S. Cope and W. W. Liebrecht, Minneapolis-Honeywell Regulator Co.; H. D. Cook, Perfex Corp., and P. K. Ryder and Earl Bedard, Combustion Control Corp.

The school was marked by a guided tour of the Petro plant and by a special laboratory session with a heavy oilburner under fire.

Fedders-Quigan has Catalog on Line of wall Radiation

A NEW CATALOG, WR-C3, covering the latest line of wall radiation, has been announced by the Fedders-Quigan Corp., Buffalo 7, N. Y. Data covers uses, engineering data, specifications and dimensions.

New features of Fedders wall radiation includes interlocking fin design to assure permanent metal-to-metal contact between prime and extended surface, channel-reinforced covers to withstand industrial and institutional service, overlapping cover sections for quick installation on the job.

Refractories Institute has Manual on refractory Brick

A MANUAL on "Recommended Equipment and Procedure for the palletized Loading and Shipment of refractory Brick" has been released by The Refractories Institute, Pittsburgh 22, Pa. This manual, containing 28 pages of scale drawings and descriptive material, covers: the standard wooden pallet, standard pallet load protection, carloading patterns and standard wooden end and side gates.

It offers a detailed formula for the palletized handling of refractories.

Chrysler Airtemp film Release tells air conditioning Story

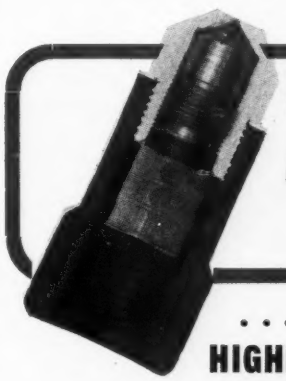
"IT'S IN THE AIR," a 20-minute color film relating the story of air conditioning's role in the average home, has been released by the Airtemp Div., Chrysler Corp., Dayton 1, Ohio.

Filmed in Kodachrome, "It's In The Air" presents the story of the various atmospheres of planets in the universe. It tells of the role that the earth's living, breathing creatures enjoy in the heavenly arrangement of planets.

How extreme heat and cold, too much or too little humidity, and airborne dust particles, dirt and pollen affect the normal lives of the earth's people is illustrated with animation.

The principles of air conditioning, which control these elements in enclosed spaces, are illustrated with an interesting visit with the average family in the average, air conditioned American home.

"It's In The Air" is available for free distribution to schools, fraternal organizations and other groups.



this HARSCH Nozzle is the Talk of the Entire Industry!

. . . it offers an unbeatable combination:
HIGHEST QUALITY + DEPENDABLE RATINGS + LOWEST PRICES = the NOZZLE for YOU!

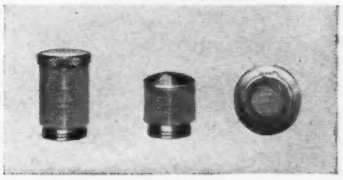
You're assured of highest quality workmanship, dependable spray pattern, and a consistently reliable gallonage rating, when you BUY HARSCH

MEET the HARSCH FAMILY of QUALITY PRODUCTS

SINGLE and DOUBLE ADAPTORS

19 NOZZLE KIT

STRAINERS



It will pay you to standardize on HARSCH:
Send for full Data and Prices NOW!

H. HARSCH & CO.
230 TUSCAN ROAD MAPLEWOOD, N. J.
Krosno-Stamm Mfg. Co. (Canada) Ltd., Montreal, Canada

SILENT GLOW

pioneers

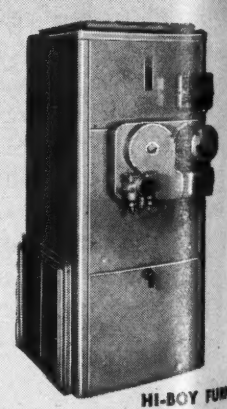
again!

30th Anniversary SILENT GLOW

Just as a Coronation denotes the beginning of a new era, the new Silent Glow Coronation Burner makes possible sales, operating, and servicing advantages that mean the dawn of an entirely new era of thinking and consumer preference in domestic and industrial oil heating. Inspired, functional, panel-type design gives a compact unit in half the space with ten times the flexibility because the Coronation Burner, as you see it here, can be custom fitted to the exact needs of any installation within its broad range. This is done through variable drives so that the air and oil are supplied at most economical proportions. Such flexibility means that for any installation each component can be made to work at peak efficiency and with minimum electrical consumption.

Equally important is "dynamic silencing." The pump, fan and motor operate at different speeds (like soldiers breaking step when they cross a bridge), so that vibration is blended out and, in effect, silenced. The Coronation Burner is not silent, but you'll think so when you watch it operate—it is so hushed and vibration free.

COMPLETE LINE OF



HI-BOY FURNA

WITH REVOLUTIONARY *NEW*

Coronation® BURNER

OIL HEATING SHOW IN BOSTON ACCLAIMS SILENT GLOW ADVANCE... HUNDREDS ATTEND DEMONSTRATION IN HARTFORD

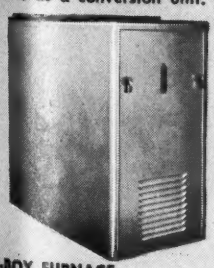
Photo Courtesy of Hartford Courant

Silent Glow's new Coronation Burner was introduced at The Eastern Biennial Exposition of Oil Heating held in Boston, June 2-5, and it stole the show. It was acclaimed as "the outstanding new development at the show," "the greatest new sales tool for the industry in years," "at last a burner with eye appeal," 'something really new to sell." While the show was a good indication of the Coronation Burner's enthusiastic reception, a further and even more significant "barometer reading" was shown at Silent Glow's demonstration held in Hartford on June 17 when several hundred attended a day-long "open house" where the equipment was in operation. Here was a chance to examine the burner operating in different units under different conditions. Here was concrete proof of our claims of quiet operation, efficient firing, flexibility, and lack of vibration. Dealers, distributors, and competitors alike were on the spot, asking questions, making notes, and giving the Coronation Burner and other Silent Glow equipment a thorough once-over.

Here is a product that will put new life, new performance, new sales possibilities into oil heating. Dealer enthusiasm indicates that the Coronation Burner is already the big news for '53. Dealers looked, checked, tested the equipment, filled out orders and wrote checks for them, when available. We don't know what they thought, but money talks. For more information, get ahead of the rush . . . write today.

AND BOILER-BURNER UNITS

ilent Glow's new and complete line of furnaces and oiler-burner units for hot water and steam combined with the new Coronation Burner offers the ltimate in providing an abundance of serene and omforting warmth in peaceful, hushed quietness. ere is a combination easy to sell . . . nd good to live with afterward. The new oronation Burner is also thoroughly applicable as a conversion unit.



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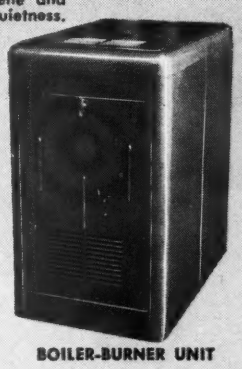


BOILER-BURNER UNIT

ACT FAST
GET THE FACTS . . .

Those Who Know Choose SILENT GLOW OIL BURNERS

To: THE SILENT GLOW OIL BURNER CORP.

850 Windsor Street, Hartford 5, Connecticut

Please send information on ☐ Coronation Burner ☐ furnaces and boiler-burner units.

Name: .....

Company: .....

Street & No: .....

City: ..... *State:* .....

Everyday Snags

Water not Fit to drink

The engineer responsible for the boiler-room equipment serving some large New York apartment houses was boasting recently of the excellent condition of the water in his low-pressure steam boilers, which range in size from 60 to 250 horsepower. The discussion that followed developed a phrase that might well be used widely in describing boiler water.

"It's so clear that it's almost fit to drink," the proud engineer described the water he drew from the gage-glass columns and blow-off valves of the boilers.

"If it's not fit to drink but is clear enough to look potable, would you take a bath in it?" asked the visiting engineer who was being impressed by all this.

The engineer in charge of the boilers said, "Certainly".

Out of this comes the term, "boiler water fit to take a bath in" (that's somewhat short of potable, fit to drink).

If you are responsible for the condition of the water in your customers' boilers, both hot-water type and steam-type, would you say this water is being kept "fit to take a bath in"?

Twin pressure Controls

Part III of the FO&OH series of articles on oilburner wiring and controls, in the May issue, indicated once more that cautious oilburner dealers provide two high limit controls for installations on which the failure of a high limit control can cause eventful or disturbing trouble; two such controls, wired in series, should be installed where the high limit control will start and stop the burner dozens of times a day.

The author, J. W. Schulz, now says he should have indicated the two high limit controls should be wired to give the effect of series wiring, the effect of the second control's taking over in case the first control sticks "on" or is short-circuited, for he is in emphatic agreement with the burner expert who sent him this note:

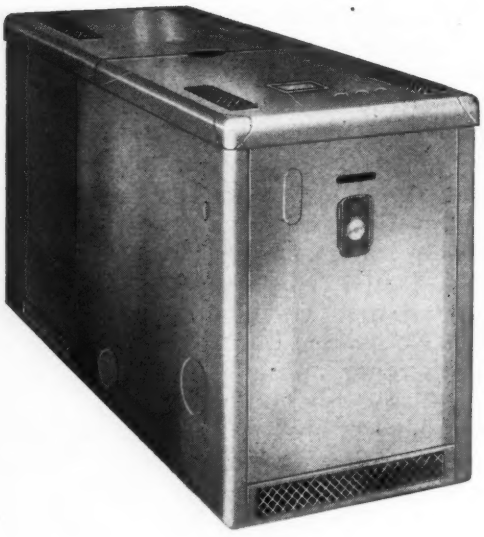
"Yes and as your article says, you've recommended for years the installation of twin high limit controls on jobs that overwork their high limit controls. Like many other men vitally interested in controls because the safety of my jobs depends on proper control action, I finecomb ruthlessly your articles on controls. I humbly point out you made a Boo-Boo in your otherwise excellent article, for on many jobs you don't want the twin high limit controls wired in series any more than I do. You have indicated this in your earlier articles and your lectures.

"Say you have a large pressure burner firing a process-steam boiler providing 50 lbs. pressure. The burner motor is not so large that you cannot wire a pressure control in the live line to the stack control panel. In that case, you wire the first control (that normally starts and stops the burner) in the low-voltage thermostat circuit of the control panel. Because when wired low-voltage this control handles little current, so suffers little in starting and stopping the burner thousands

★ ★

COMPARE!

The Bethlehem DYNATHERM



The Only Oil Heat Unit in the World with All the FEATURES YOUR CUSTOMERS WANT!

★ *The Whirling Flame.* Extracts every bit of useful heat from every last drop of oil, assuring big savings on fuel bills!

★ *Unit Engineering.* Design and construction as an integral unit results in far greater heating efficiency.

★ *"Thermos Bottle" Insulation.* Radiation and heat loss are minimized throughout the non-heating season.

★ *Beautiful Cabinet.* Duotone baked enamel cabinet with chromium hardware will blend perfectly with the other surroundings.

YOU CAN SELL THE DYNATHERM WITH PRIDE, CONFIDENCE AND PROFIT!

A few exclusive Bethlehem Dynatherm territory Franchises are still available. Wire or write for full information.

BETHLEHEM FOUNDRY & MACHINE COMPANY

BETHLEHEM, PENNSYLVANIA

★ ★

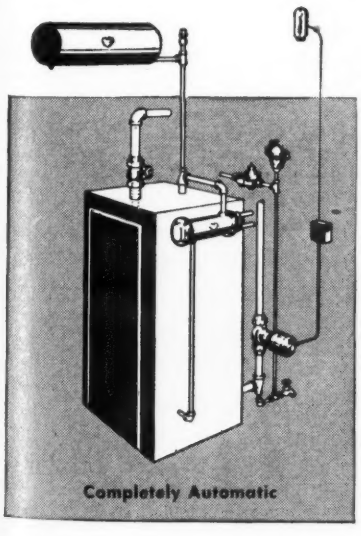
Less than
1/5 of 1° variation in
room temperature

More Livable Space with
Modern Radiant Heat

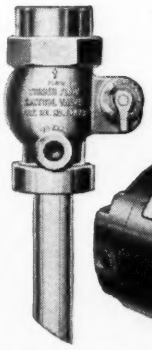
THRUSH *Radiant HOT WATER HEAT

BUILDS FRIENDS FOR YOU...

WHEN YOU SELL and install the most modern and economical heating system . . . Thrush Radiant Hot Water . . . you make friends and boosters for your business. Home owners appreciate the level, unvarying temperature it provides. There's no fluctuation . . . no overheating, and radiant heat is constant . . . regardless of weather changes. Forced Circulation means positive delivery of heat to every heating unit . . . and there's plenty of hot water for kitchen, laundry or bath the whole year through. ***Ask your wholesaler about Thrush Systems today or write Dept. C-7.***



Completely Automatic



Flow Control Valve
with Air Tube

Thrush Water
Circulator

H. A. THRUSH & COMPANY
PERU • INDIANA

of times, and lasts for years and years.

"Wire the second control in the live leg to the control panel. That's a safer location in the wiring circuit, for it stops the burner even if the motor-starting relay in the control panel sticks 'on' when the thermostat circuit is open. But this location gives the high limit control a beating by comparison, so we don't want to use regularly (dozens of times a day) a control wired in this location.

"Set the control much higher than the first control is set, 10 lbs. higher if practical, hoping someone in the plant will notice the higher boiler pressure when-and-if the first control fails and the second control takes over. Naturally the second control is set for steam pressure lower than opens the pop safety valve on the boiler."

Dry pump Shafts

Certain motor-driven pumps handling fueloil, condensate, or plain water have packed glands for their drive shafts. From time to time you have to take up a bit on the packings to prevent excessive fueloil or water leaking through the glands. This applies to many centrifugal pumps handling water or condensate as well as to gear-type pumps handling fueloil.

The point here is that a perfectionist often ruins the shaft of one of these pumps by starting out with the wrong idea, then pursuing the idea with great determination. The wrong idea for many of these pumps is that not one drop of liquid (fueloil or water, whichever the pump handles) should ever come through the packed glands. That's wrong, because keeping the glands of some of these pumps so tight that the shafts stay bone-dry ruins the shafts.

The engineer in a certain boiler room took pride, the first year he held his job, in tightening the gland of his gear-type fueloil pump often enough so that the pump shaft never showed a trace of fueloil. At first he tightened the gland once a week; finally he was tightening it every day and replacing the gland packing once a week. Then taking the pump apart and inspecting its parts showed that the shaft had been scored and ruined by dry packing —packing kept dry because not a drop of fueloil came through it.

"Tighten the packing gland only mildly after you install a new pump shaft," the pump manufacturer instructed him, "for a drop of fueloil should come through the packing every hour or so to keep the shaft lubricated where it rubs against the packing. The gland may permit fueloil to drip. If it does, put a can or pan under the shaft. Follow these instructions and your pump shafts will last 15 years instead of one year."

Sadder and wiser, the engineer then checked two centrifugal water pumps, whose packed glands he had been taking up often enough to keep the shafts bone-dry. He wound up replacing the shafts of the two water pumps, and permitting their packed glands to drip a bit from then on.

If you are in doubt about whether a packed pump shaft should run bone-dry or should drip a bit to insure long life for the shaft, ask the manufacturer of the pump.

Do Your PRESENT PRECAST CHAMBERS Give You ALL these Advantages?

1. Low initial cost.
2. Low installation cost — only 5 pieces to assemble.
3. K-factor equal to insulating brick.
4. Excellent performance with either high or low pressure burners.
5. Scientifically packed to prevent breakage.

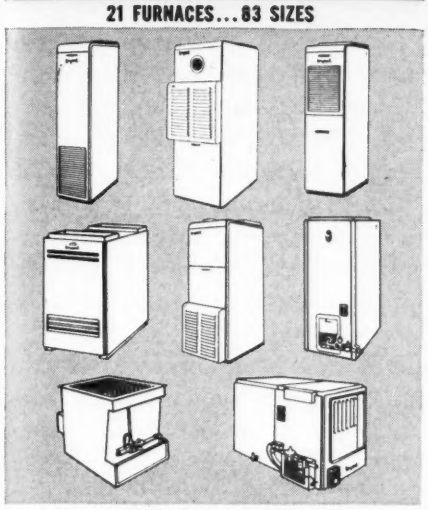
. . . if the answer is NO -- contact us NOW!

KOLB REFRACTORIES COMPANY
Meadow & Jackson Sts.
Philadelphia, Penna.

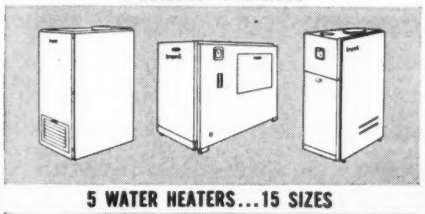
KolbKast Insulated Chambers

THE MOST
COMPLETE LINE OF
HOME CONDITIONING
EQUIPMENT IN
THE INDUSTRY

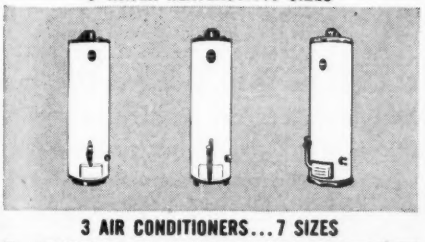
21 FURNACES...83 SIZES



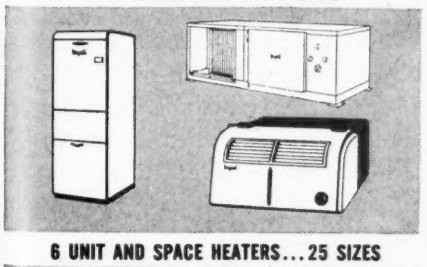
4 BOILERS...45 SIZES



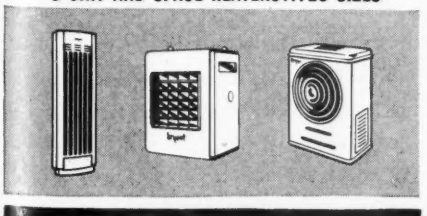
5 WATER HEATERS...15 SIZES



3 AIR CONDITIONERS...7 SIZES



6 UNIT AND SPACE HEATERS...25 SIZES



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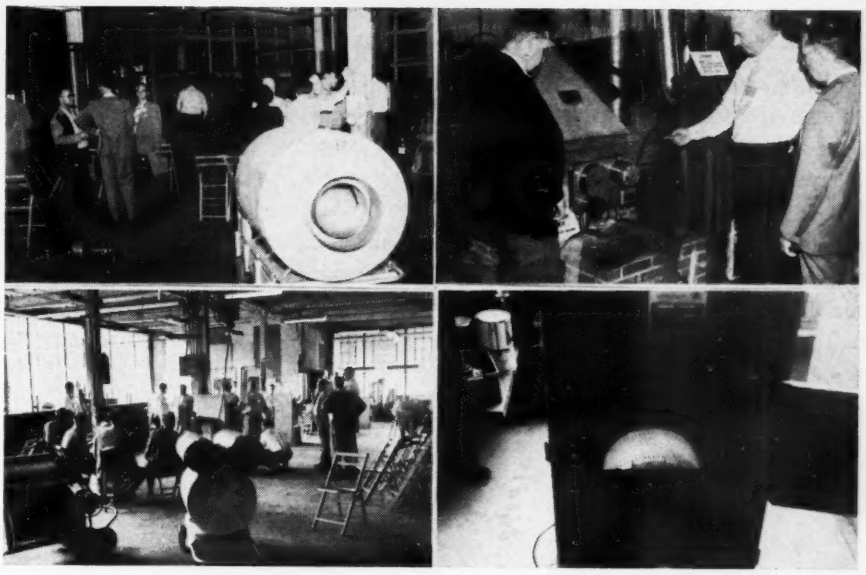
HEATING · AIR CONDITIONING · WATER HEATING



Open House at Silent Glow, *as 200 oilheating dealers and other industry men came by invitation to study a number of new products under fire.*

The two snapshots on the left show general views of the visitors as they milled around, talked things over and enjoyed a buffet lunch. At the upper right Ross Sherman, company president, describes to Dr. H. R. Heiple and G. L. Rougier of the Shell Oil lab his new Coronation burner. At the lower right is a new combustion chamber of perforated metal, which according to the instruments is very effective. Silent Glow has used some 15,000 of these in its portable heaters and now brings them into domestic oilburning.

Cooperating *with the Scotch-lite Safety Committee of the Junior Chamber of Commerce, the Allied Oil Co., Inc., Philadelphia 43, Pa., beginning in May started to affix to any fueloil truck or service truck coming into any of its three yards a sticker that reads, "Save and be safe with oil." The sticker is 2" by 30", with red Scotchlite letters, which glow brightly at night when headlights shine on them. The Committee reports that the use of Scotch-lite stickers in this fashion reduces rear end collisions by 85%. Albert K. Kaye of Allied says that the manufacturer of the sticker claims its life should be between two and four years since its adhesive sets in a few hours and the entire sticker becomes as hard as enamel and cannot be scraped off.*

Leaky shut-off Valves

Years ago, the serviceman who encountered a pressure burner which had a leaky shut-off valve often ground it in on-the-job. This was not a dependable solution for the trouble, for some of the best servicemen wound up with good results from only two-thirds of the shut-off valves they ground in.

Times changed, and the serviceman finding a leaky shut-off valve would either replace the shut-off valves parts in a standard fuel unit—if he was lucky enough to have with him precisely the parts needed for this—or replace the entire fuel unit by a new or rebuilt fuel unit, and later make the defective shut-off valve tight-closing in his own shop, or ship the fuel unit with the defective shut-off valve to a specialist at rebuilding it.

Times now are changing again, at least for certain servicemen. These men have in their cars at all times a solenoid shut-off valve that can be added easily to any pressure burner to end leaky shut-off valve trouble. That's literally any pressure burner. Thus having one small part in his car at all times provides a serviceman with the assurance that he is ready to end leaky shut-off valve trouble in a matter of minutes. He ends the trouble positively and dependably, regardless of the make and model of the pressure burner.

To top this off, he provides the burner with the well-known and highly important snappy cut-off feature, given by a solenoid valve in the nozzle line. If he uses a solenoid valve of the delayed-opening type, he provides in addition the well-known clean start-up feature which is the reason this type of valve is being used on thousands of new burners.

"Every pressure burner should have a delayed-opening shut-off valve in its nozzle line to provide cleanest possible start-ups and shut-downs," declares a certain service manager. "Finding that the shut-off valve of an old burner is leaking gives me a most welcome excuse to improve the burner—and end the trouble at the same time—by adding to it a delayed-opening valve."

Leaves lower Draft

As many similar boilers do, this cheap boiler-burner unit having small combustion space and highly restrictive flues started giving pulsation trouble when the heating season ended and the boiler started providing summer hot water only. The serviceman fastened the flame observation door open about a quarter of an inch, and explained to the owner that low chimney draft in summer caused the pulsation. The burner ran but little to heat water, therefore the chimney was too cool to provide proper draft.

The owner kept on fussing, however, with the result that the serviceman decided to make combustion tests again. He did this reluctantly, for he had tested the job thoroughly during the heating season when he had first started the burner.

To his surprise, the over-fire draft was plus .04" in summer, whereas it had been minus .03 in winter. The difference between the winter draft readings and summer draft readings was extraordinarily high. The result

A POINT WITH SELLING PUNCH!
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U.S. PATENT NO. 2,594,266
ANTI-RUST FUEL OIL
CONTAINS RD-119®
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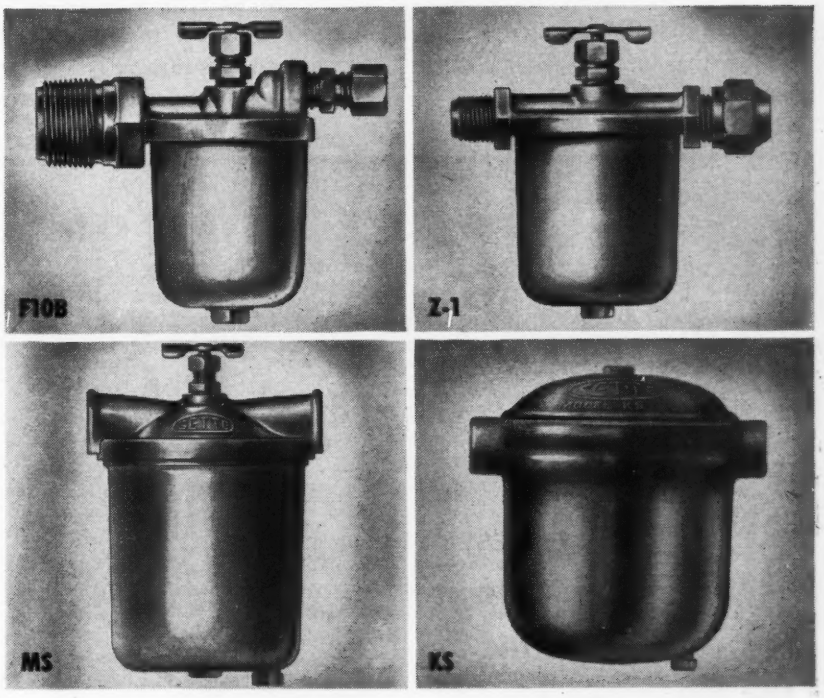
...*positively preventing* clogged nozzles and damage to pump valves, bearings and fittings—caused by rust, tank and pipe scale, fine dirt and oil impurities.



SETTE FILTERS...

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- Are easily installed
- Flow capacity from 2,000 to 100,000 gallons per year, depending upon model selected, without cleaning or replacing Microstone element
- Yearly required Microstone Element change can be made in five minutes
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- Offers practically no flow resistance
- Are available in capacities for every heating installation
- Will handle any U. S. or Canadian oils now being supplied

Model F10B—List Price **$2.80 each**
For small to medium installations.
Fits tank or drum.

Model Z-1— List Price **$2.80 each**
For small to medium installations.
Fits ALL control valves.

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EXPORT DIVISION—OCEANIC EXPORT COMPANY • 400 MONTGOMERY STREET, SAN FRANCISCO 4, CALIFORNIA

was the serviceman took a look around outside the house. Right over the top of the chimney, no more than three or four feet above it, were big branches of an old tree. Bare of leaves in winter, during the heating season these branches did not result in insufficient chimney draft. Full of leaves in summer, they practically put a lid over the top opening of the chimney, as was proved by sawing them down. This produced .03" negative over-fire draft for the summer, and ended the summertime pulsation trouble.

Higher cfm in Summer

This is no argument about whether or not a salesman ought to do this, but in an effort to sell a new forced-air oil furnace to a homeowner this salesman promised that running the circulating blower of the furnace in summer would produce "many of the advantages of summer airconditioning".

According to the homeowner, things did not work out that way. Flipping a gadget on his furnace bonnet control to keep the blower running continuously in summer, he complained to the salesman, made no difference in the house. Hardly any cool air came from the supply registers, he said.

The salesman chuckles now as he tells how he ended completely the owner's complaints. He exclaimed, "Why you have not removed the air filters from your furnace to obtain the maximum, intended rate of cubic-foot-per-minute air flow in summer!"

He removed the filters from the furnace and demonstrated to the open-mouthed owner the great blast of air that came from the registers as a result. The owner is now one of the greatest boosters for the forced-air systems the salesman sells.

Thermostat Sensitivity

Chattering of the motor-starting relay in a burner safety control panel can result on certain jobs from a combination of (a) use of an extremely sensitive room thermostat, and (b) vibration of the wall on which the thermostat is mounted. Chattering of the relay turns the current to the burner motor on and off quickly. It can cause mild starting puffs, which those uneducated to oilburner behavior are likely to describe as small explosions. It can cause difficulties similar to those of low line-voltage in the house, or poor combustion during start-ups. It can cause the burner to stop "on safety" in a mysterious fashion.

If a burner keeps stopping "on safety" for reasons you can't ascertain or in a mysterious manner gives the other troubles mentioned above, make certain the difficulty is not caused by excessive sensitivity of the room thermostat coupled with thermostat vibration. You can, for one thing, increase greatly the differential setting of certain room thermostats to find out if this ends the trouble. That helps end relay chattering which may be occurring only while you are not on the job, and which is caused by trucks rumbling by, slamming of doors in the house, children running on the stairs, or trains passing near the house and shaking it.

Dancing Waterline

The chief engineer in a certain power plant had a hectic day recently

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THE GREATEST ACHIEVEMENT IN THE OIL BURNER SERVICING INDUSTRY
• This tester will more than pay for itself the first heating season.
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because two years ago he did something which most engineers consider unwise, then forgot about it. To stop the dancing of the waterline in the gage glass of his high-pressure boiler, which the boiler manufacturer assured him was all right but which made him nervous, he closed tight the bottom valve of his gage glass, then opened the valve slightly, about an eighth of a turn.

Early in the morning on the hectic day, his alarm whistle started blowing, indicating low water in the boiler. He quickly looked at the boiler's gage glass. It indicated the boiler had more than half a glass of water, but because the alarm whistle kept on blowing he gave the boiler more water. For the next four hours, the water in the gage glass became higher and higher, and every time he decreased the rate of pumping water to the boiler, the low-water alarm whistle shrieked. The gage glass became full of water, yet the whistle demanded more water for the boiler.

Why did he believe the whistle, not the gage glass?

For one thing, he said later, the whistle was more demanding. Its shriek could not be disregarded. For another thing, the error of putting too much water into a boiler, if detected quickly by a man on guard for it, brings on lesser penalties than the error of permitting the waterline of a boiler to become too low while the boiler is carrying a heavy load. When in doubt, you put too much water into a hard-working boiler—you avoid insufficient water like you avoid the mumps!

Later with the boiler shut down, the engineer learned, of course, that the lower gage glass valve, which he had forgotten he had set only an eighth of a turn open two years earlier, had plugged tight with sediment from the boiler water. It had plugged, leaving the gage glass half full of water, an hour or two before the warning whistle had first blown. Then, though the boiler water had continued to be low enough to cause the whistle to blow from time to time, the gage glass had filled up completely as the result of steam condensing in the piping and fittings above it and providing condensate to fill it.

Cfm for Cooling

When you add a freon compressor unit and cooling and dehumidifying coils to an already-installed forced-air heating plant, don't guess the amount that the cfm of the system should be increased when it provides summer air-conditioning. Figure accurately the cfm needed for the summer conditioning, then make certain the system provides it in summer.

The cfm needed for summer conditioning usually is much greater than the cfm that provides best heating in winter. This is demonstrated in a large building that has four 5 hp motors to drive its circulating blowers used for airconditioning. The blowers provide at all time, summer and winter, the correct cfm for summer cooling.

On coldest winter days, as a result, the rooms are heated to 72° by warm air that comes from supply registers at only 110° F. On ordinary days of the heating season, with outside temperatures between 25° and 40°, the temperature of the supply-register air nat-

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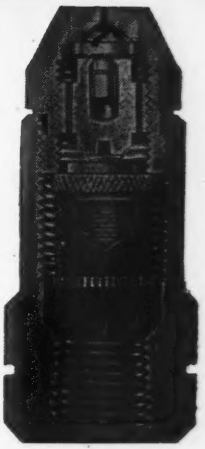
Service men know that replacing burned and blackened nozzles with DELAVAN NOZZLES of the correct size and type during every summer clean-up means fewer call-backs, fewer "no heat" calls in the fall. Shop records show that this practice pays off with lower service costs.



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urally is below 110°. The results include many complaints from the building occupants about "cold air" blowing from the supply registers in winter, although thermometers in the rooms show 72°.

The blowers operate continuously throughout the year in this building. Eight room thermostats of the modulating type, two for each zone, regulate the flow of steam to the air-heating coils in winter, with the result that the temperature of the air in the supply ducts is correct at all times for heating the rooms to precisely 72°. The system's cfm is excessive in winter.

Simple three-zone Trick

Planning a large three-zone hot water heating system powered by a 75 hp boiler, an oilheating equipment dealer had to decide on the details of the reverse-acting boiler temperature control, because the boiler had a tankless water heater. He considered

(a) using one reverse-acting boiler temperature control to drop out a three-pole relay when the boiler tended to chill, and connecting the three circulators to the three sets of contacts in the relay;

(b) using one heavy-duty relay in the same way to break the live line to all three circulators when the boiler tended to chill; and

(c) using three reverse-acting boiler temperature controls, one for each circulator.

The last idea seemed best to him—simplest and least expensive. After deciding to use it, he got an inspiration: Make the control set-up still simpler by installing only two reverse-acting boiler temperature controls—omit the reverse-acting control from the smallest of the three zones—because cutting off two of the three circulators would be going far enough when on coldest mornings circulator operation would tend to chill the boiler so much as to cause the tankless heater to fail to heat water properly.

The idea works out splendidly, a year of using the system has proved. The heat provided for each of the three zones seems equally good, even though on coldest mornings one or two circulators stop a few minutes at a time to lower the load on the boiler when it cools below 170°.

Large-port vent Valves

The "Readers' Problems" department of FUELOIL & OIL HEAT recently had a question and answer about whether or not tenants in an apartment house should have to remove radiator vent valves of a one-pipe steam plant and shake water from them to make radiators heat properly. The answer indicated the inquirer should try a few dozen of his pet make and model vent valves intended for oilfired systems in the system giving the trouble.

A reader writes to agree:

"In certain vent valves, the final passages through which air should escape are of relatively small cross-section and are relatively long. A single drop of water is five times as much water as is needed to plug these passages. Stagnant air remains in the tube-like passages and is in contact with a microscopic area of water 'parked' in them. The result is slow evaporation of water 'stuck' in the passages.

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"Run a burner for 20 minutes and naturally air escapes freely from the vent valves which are dry, not plugged by droplets of water. Water-bound vent valves remain plugged, for not enough steam pressure develops in the system to blow the water out of them forcibly.

"The remedy is to select vent valves having relatively large vent ports that are very simple, like holes in a sheet of metal. Any water that blocks a hole or port of that type will evaporate quickly. Also slight pressure in the system, a tenth of a pound, blows water out of a such large-area vent port.

"No, tenants definitely do not have to shake water out of vent valves designed 100% for on-off oilfiring!"

Floor Furnaces

Floor furnaces, exceedingly popular in certain areas, can receive so much dust and dirt in summer as to result in bad burned-dust odors—and even small fires—when they first are fired up in fall. Housewives have been caught sweeping dust and dirt into the registers of floor furnaces! Children have thrown scraps of paper into them.

Offset this hazard by instructing owners of floor furnaces to keep dirt and dust out of them. If you are sure an owner will remove it before firing up his floor furnace, you can tell him to put a rug or piece of linoleum over the register for the summer, to keep dust and dirt out of it. Telling him that other people do this will impress him anyhow with the importance of not sweeping dirt into the register.

Steam Boiler Controls

An idea new to many oilburner men is outlined in a McDonnell & Miller bulletin, signed by Nils W. Swanson.

The bulletin first points out that 89.4% of the boilers shipped in 1952 were intended for automatic firing, and stresses that the swing to automatic firing brings a demand for more and better automatic protection. The bulletin then makes the following points.

For school jobs having steam boilers, McDonnell has always recommended a safety water feeder plus a low-water cut-off. A combination unit was used to provide mechanical as well as electrical protection for the boiler.

The new idea is to use two separate controls to gain important advantages at only slight additional initial cost.

On a newly completed school job, the heating system is washed out thoroughly to rid it of grease and dirt. All the condensate is drained to a sewer for a while so that foreign matter from piping and radiation is not directed into the boiler.

Separate controls give the advantage of permitting the cut-off to be located a few inches below the automatic feeder. Then the boiler can operate automatically with the feeder adding water to make up for the wasted condensate, and the cut-off standing by safeguarding against water-supply failure. The new arrangement practically pays for itself during starting of the job because with it less attendance in the boiler room is needed during the cleaning process.

Obviously this idea has advantages for all steam heating jobs, although seemingly it is being used widely at first for school jobs of considerable size.

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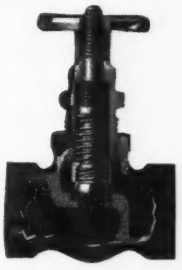

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The FIROMATIC ALL-PURPOSE VALVE . . . combines three features in one: (1) a FUSIBLE valve that shuts off automatically when subjected to heat of 165° (F) . . . (2) can be OPERATED MANUALLY . . . (3) an ANTI-HUM valve, serving to eliminate the objectionable hum which sometimes occurs on power type burner installations.

Furnished with ¼" or ⅜" female connection; or ⅜" compression or flared fitting, in globe or angle type.

"You Can Pay More, But You Can't Buy Better!"

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And what a difference in delivery operations it makes to the fuel oil dealer who offers it as a means of converting customers to carefree "keep full" service.

Why these big differences? Because when you offer VENTALARM Whistling Tank Fill Signal service you can promise clean, convenient fuel oil delivery day or night — oil heat that is truly automatic. The oil man need never enter the home. HE JUST SAFELY FILLS 'TIL THE WHISTLE STOPS.

Model "LA" for new burner installations. Model "LC" for tanks already in use.

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It attracts. It holds attention. It makes friends. It paves the way for burner and oil sales. Write today for free descriptive literature and sample mailing enclosures.

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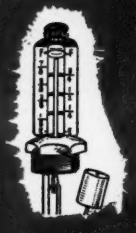


VENTALARM® TANK GAUGE
Combination Audible Signal and Visible Gauge

FAST-FILL® CONNECTOR
Portable connection for gun and all pipes of oil dealers.

New Products

Taco adds two Sizes of Air-Scoops for the commercial Installation

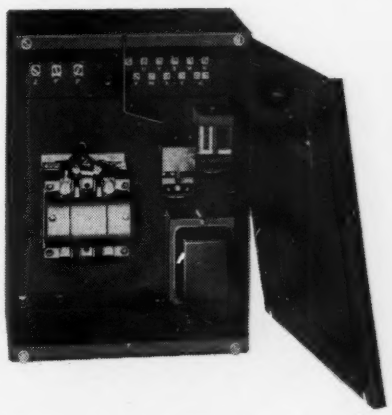
TACO has added two new Air-Scoops in 2" and 2½" for large or commercial installations. The new sizes operate on the same principles as the ¾", 1¼" and 1½" sizes announced better than a year ago.

Air-Scoops are designed to remove air from hot water heating systems, collecting air bubbles by a baffle and guiding them into an upper chamber. If air bubbles get by the first baffle, they are scooped up by a second and third. The upper chamber of the Air-Scoop is divided in two parts, air from Chamber No. 1 being removed by the air valve and air from Chamber No. 2 passing into the expansion tank to act as an air cushion. If air should completely fill the expansion tank and back down into the Air-Scoop, the excess will be removed by the air valve.

Made by: Taco Heaters, Inc., 137 South St., Providence 3, R. I.

Honeywell develops control Package for residential heating-cooling Units

A COMPLETE PACKAGE of residential airconditioning controls has been designed, basically intended for use with Honeywell's heating-cooling thermostats that have built-in selector switches. The complete package provides a single, pre-assembled system for either a combination heating-cooling unit or an "add-on" cooling unit for an existing heating plant. Can be used on heating and either single or two-stage cooling units with 2, 3 and 5 tons capacity, single phase and up to 7½ tons capacity, three phase.



One model, the W203A, is for heating and single stage

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GENERAL Thermostatic Mixing Valves

INSTEAD of make-shift cross-over connections with stop valves, you can give customers *really accurate* tempering in their household hot water systems . . . and make an easy profit on the added sale.

GENERAL Thermostatic Mixing Valves are quality products . . . scientifically designed to maintain correct temperature at the tap, summer and winter alike. A simple explanation of their benefits quickly convinces any house-holder that the small additional cost is well worthwhile.

Try it for yourself . . . include a *GENERAL* Mixing Valve in every water heating estimate. Ask your wholesaler for illustrated descriptive folder . . . or write General Fittings Company, 125 Georgia Ave., Providence 5, R. I.

The Quality Mixing Valve

- Cast Bronze Housing
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- Nickel-Silver Sliding Sleeve
- Outside Adjustment — 80° to 210° F.
- 5 Sizes for Flow from 6 to 160 g.p.m.

GENERAL GF

TANKLESS AND INDIRECT WATER HEATERS AND HEATING SPECIALTIES

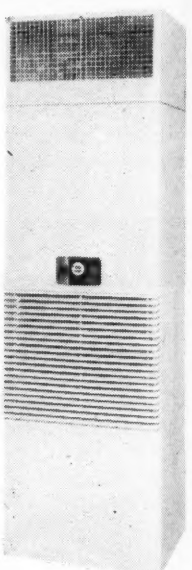
cooling. Available with NEMA size 0, 1 or 1½ motor starters or contactors, it contains a fan relay, interlock relay, 24-volt transformer and a line and low voltage terminal board. The second model, W203B, performs the same function, but includes a second motor contactor for two-stage cooling. It also contains a time delay to prevent the compressors on two-stage cooling from starting simultaneously and possibly overloading power lines.

When the panel is factory mounted and wired to the compressor and fan motor, only a single 115 or 230 volt line and ground must be connected. Other connections are low voltage. If a cooling unit is added to a heating plant, only two low voltage wires and a line voltage connection to the fan are needed to tie the two sections together. Panels measure 12" high by 9½" wide and 4¾" deep.

Made by: Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

American-Standard adds to Mayfair Line of commercial cooling Units

LATEST ADDITION to the American-Standard Mayfair line of airconditioners is a packaged unit for commercial establishments, manufactured in two models: CCA-2 and CCA-3 of 2 and 3 hp, respectively. Cooling capacity for the smaller model is 24,000 Btu/hr; 36,000 Btu/hr for the 3 hp model. If the cooling load exceeds these ratings, multiple units can be installed. Winter heating can be provided by the addition of a heating coil, supplied with steam or hot water from a boiler. Either model fits into a 22" x 25" floor space.



The Mayfair may be installed directly in the premises to be cooled or at a remote location with ductwork conveying conditioned air to the business area. The units feature hermetically-sealed refrigerant circuit, consisting of a gas-cooled compressor and a counter-flow condenser with removable header plates. Controls include thermostat, three-way fan switch, "Humid Weather" control, with air direction and flow controlled by a 4-way adjustable grille in the plenum section. A return air grille of fixed deflection is located in the front of the unit.

Made by: American Radiator & Standard Sanitary Corp., P. O. Box 1226, Pittsburgh 30, Pa.

Fireye has flush Enclosures for 26 Series flame failure Controls

FLUSH TYPE ENCLOSURES are available for the 26 Series flame failure safeguard controls. These units are included in Fireye flame safeguard Systems FP-2 and FP-4 for automatic and manually-fired burners of all types.

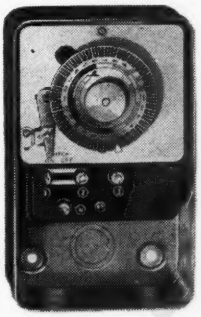
FP-4 system is used for manual or semi-automatic fired

gas-oil or coal burners; FP-2 system is used for full automatic burners. Both are supplied with dust-tight, flush-mounted control housings. These can be mounted readily in the combustion control power panel with all control wiring concealed in the rear of the panel.

Made by: Combustion Control Corp., 718 Beacon St., Boston 15, Mass.

Paragon Series 300 time Switches introduced with improved Design

IMPROVED DESIGN of Paragon's 300 Series time switches incorporates improvements in the terminal block for faster installation and improved "shock proof" connections. Redesign of contact arms in the switching mechanism insures more positive locking in "on" and "off" positions, retaining fast make and break switching action.

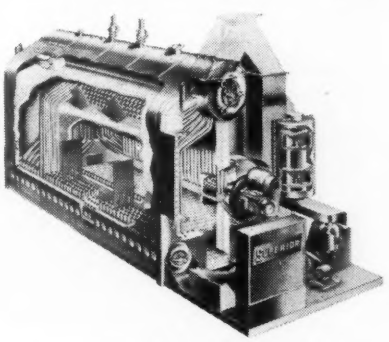


The 300 Series are adaptable for "on-and-off" switching for applications requiring up to four operations a day, including a "skip-trip" feature for hand tripping ahead of the automatic setting, without disturbing normal operating sequence. Dial and trippers may be set without tools. Nonbreakable window allows operation to be checked without opening the case, which can be locked.

Made by: Paragon Electric Co., Two Rivers, Wis.

Superior Water-Tube Units are fully automatic steam Generators

SUPERIOR water-tube steam generators are completely factory-assembled and test-fired prior to shipment. Units, available in 9 sizes with capacities ranging from 5,300 to 33,000 lbs. of steam per hour and pressures up to 400 psi, are built on a structural steel base, with refractory, insulation, burner, controls, inter-connecting piping and wiring complete and installed at the factory. Models are available for permanent outdoor installation. Designed for fully automatic operation with any fuel.



The generators' "A' type construction promotes quick steaming, while the tube layout protects the steam drum from direct impingement. The drum provides ample steam releasing surface; internal steam separator assures dry steam delivery. All water tubes are fed through the lower drums, which are of uniform diameter to eliminate undesirable restrictions. A specially-designed multiple fan induced draft system is included as standard equipment. Dual induced

Mueller Climatrol Tells the world...

to bring you MORE customers LARGER profits!

Sure, we have a reason for it. The more we talk about Mueller Climatrol advantages, the more *you* sell. So it's just good business for us to back you up in the most helpful way we can — by national advertising.

This year more than 85 million, yes that's 85 *million,* people will see beautiful, two-color Mueller Climatrol advertisements in Better Homes & Gardens, Household, House Beautiful, Living for Young Homemakers, Small Homes Guide, and Home Modernizing. These messages are all aimed at home owners, people interested in homes and home furnishings and equipment — your best prospects.

As part of the Mueller sales team, you find cooperation all the way in building up your sales — a complete packaged program from Mueller's advertising experts — all designed to help make *you* the Big Name in Heating in your area. Write today for more details about the strong advertising support Mueller gives you — and how you can join the Mueller family. D-145

96th Anniversary

Mueller Climatrol

2050H West Oklahoma Ave. • Milwaukee 15, Wisconsin

REAL BASEBOARD HEAT!

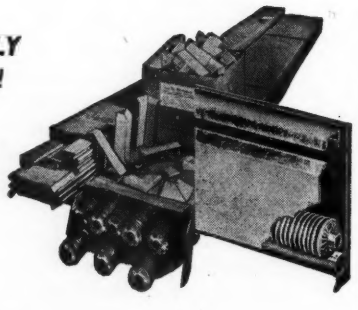
Designed for moderate output, uniformly distributed along outside walls, where air infiltration is greatest. Economically packaged.

"FLOORLEVEL" BASEBOARD HEAT

NOW AVAILABLE for both HOT WATER and WARM AIR

COMPLETELY PACKAGED!

WRITE FOR **SPEC. 56**



GENERAL Automatic
GENERAL AUTOMATIC PRODUCTS CORP

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Representatives in Principal Cities. ®

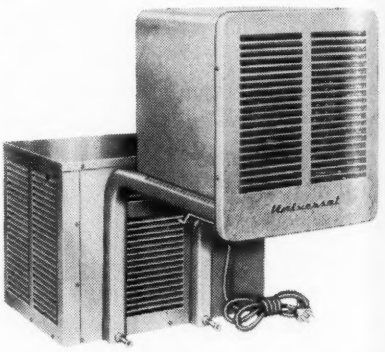
Canadian Representative:
HEATING EQUIPMENT CO., LTD.
444 St. Germaine
Toronto, Canada

draft fans and divided second pass provide firing range flexibility. Shutting down either fan permits operation at lower firing rates than are generally considered practical.

Made by: Superior Combustion Industries, Inc., 1475 Broadway, New York 36, N. Y.

Universal room cooler Line includes portable Model for casement Windows

ROOM COOLING UNITS available from Universal include a Model 60-CT ½ ton portable room cooler designed for casement windows (illustrated). The unit has a cooling capacity of 6,000 Btu/hr and incorporates a ½ hp hermetically-sealed compressor. Operating current is 110-115 volt, 60 cycle, single phase, A.C. and, if specified, models can be furnished for 220 volt service. Requiring but slightly more than 1 sq. ft. of window space, the cooler condenses the room moisture and removes it to the outside. The motor is entirely outside the room so that its heat cannot affect room temperature. When in use window must be open less than



A NEW PROFIT OPPORTUNITY FOR SERVICE CALLS ON EVERY DOMESTIC OIL FURNACE

REFRACTORY COMPOUND
"GLOWS WHITE HOT"

- INSULATES • CUTS FUEL COSTS
- PROVIDES BETTER COMBUSTION
- APPROVED BY LEADING LABORATORIES

HEAT-TANE is a tested, powder form refractory material to be spread on the combustion chamber floor. Get full facts now! Distributors and jobbers —be ready with this profit-maker for the coming heating season. For details, write

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Build smooth, quiet operation, efficient performance, and enduring service life into your fans and pumps with LOVEJOY Flexible Couplings. Quickly installed. Easily serviced. Ideal for close-quarter applications. Special rubber center increases flexibility . . . dampens out noise and vibration. Most manufacturers supply fans with Lovejoy jaws on fan hubs at no extra cost.

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• *Investigate today. Send for literature on complete line of Lovejoy Double Flex Flexible Couplings.*

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LOVEJOY FLEXIBLE COUPLING CO.

5012 W. Lake St. • Chicago 44, Ill.

PERFORMANCE PLUS LONG LIFE

Each year, the Acme Electric oil burner ignition transformers in service, are proving their exceptional performance. Now is the time to add this performance to your oil burners.

ACME ELECTRIC CORPORATION

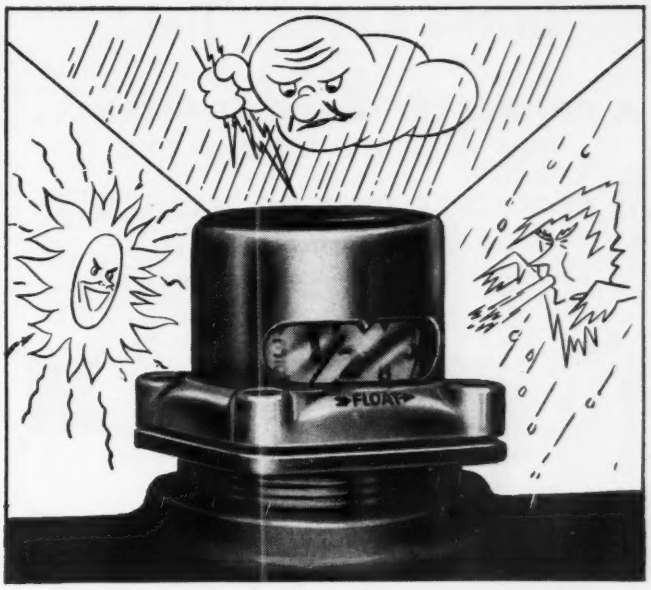
Main Plant: 507 Water Street • Cuba, New York

West Coast Engineering Laboratories:
1375 W. Jefferson Blvd., Los Angeles, Calif.

In Canada: 50 North Line Rd., Toronto, Ontario

Acme ACME Electric
TRANSFORMERS

NOW you can do something about the weather



It's sealed out of the Rochester UNIVERSAL® oil tank gauge

WEATHERPROOF! New head and flange design provides a shockproof, hermetically sealed unit that positively locks out dirt, moisture, and other foreign materials. This assures extra years of trouble-free service under *all* weather conditions.

STOCK JUST ONE GAUGE for all installations! It pays to standardize on ROCHESTER UNIVERSAL Gauges. Indoors or out, they'll remain accurate and easy-to-read for years to come.

NO SEEPAGE! NO FUMES! A powerful permanent magnet transmits float-arm action from tank to indicator . . . there are no holes in the gauge.

EASY TO READ. "DUAL DIAL" can be seen from front or back . . . makes tank filling and checking a snap.

OHI

EASY TO INSTALL and stocked by leading wholesalers everywhere for all standard oil burner storage tanks. Rochester Manufacturing Co., Inc., 8 Rockwood Street, Rochester 10, New York.

Rochester
MANUFACTURING COMPANY, INC.
DIAL THERMOMETERS GAUGES AMMETERS

ROCHESTER DEPENDABLE ACCURACY GAUGES

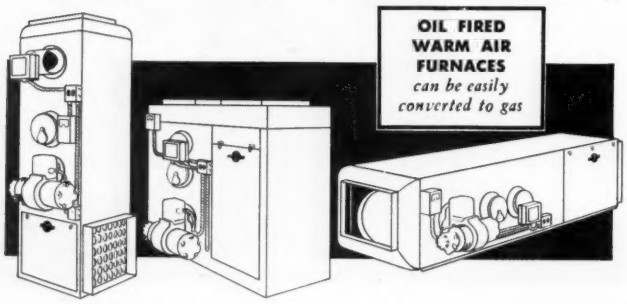
YOU ALSO GET THE

BIG SIZES

in the BESSER line!

A COMPLETE RANGE OF SIZES . . .
from 75,000 BTU to 500,000 BTU

A COMPLETE LINE OF MODELS . . .
Horizontal • Vertical • Basement
Downflo • HiBoy • LoBoy • Suspended



Plus **SPECIAL ORDER SERVICE**
on any size unit **UP TO 1,000,000 BTU**

For jobs that require units larger than 500,000 B.T.U., Besser offers fast, reliable Special Order Service. We have the facilities to build any type unit required, up to 1,000,000 B.T.U. output. Every "special order" is built to the same high standards of the regular Besser line. Whatever your need, we can build it!

And now! **A NEW PROFIT-MAKER JOINS THE BESSER LINE**

Revolutionary

HORIZONTAL Summer AIR CONDITIONERS

for Residential or Commercial installations

Combining space-saving "horizontal" design with an entirely new cooling principle, Besser Summer Air Conditioners bring central air conditioning within the reach of almost everyone. Designed for installation and operation in conjunction with central heating systems, units are fully adaptable to either warm air or hot water heating. Greatly increased efficiency lowers initial and operating costs through use of smaller units.

Available in 2, 3 and 5-Ton units.

"Only the BEST goes into a BESSER!"

BESSER WARM AIR FURNACES
Summer AIR CONDITIONERS

The Complete Line for Year-Round Profits

BESSER METAL PRODUCTS CORP., P. O. BOX 4064, CHARLOTTE, N. C.

2", with filler strips provided to close this opening. Fits any window sill up to 16" in width.

Universal also offers two sizes of conventional room air-conditioners, Model URC75-53, with a cooling capacity of 9,100 Btu/hr, ¾ hp hermetically-sealed compressor and designed for rooms up to 485 sq. ft.; Model URC50-53, with a cooling capacity of 6,100 Btu/hr, ½ hp hermetically-sealed compressor and designed for rooms up to 325 sq. ft. Both the condenser and compressor in these models are located outside of the room, preventing the heat they generate from being circulated in the room and also making for quiet operation.

Made by: Universal Major Electric Appliance Co., Lima, Ohio.

American Additive develops Oilate, fueloil Conditioner

OILATE, a development of American Additive, is a fueloil conditioner available in pints for domestic use and in larger containers up to 50 gals. for industrial use. A pint will treat 300 gals. of fueloil. The additive is designed to eliminate moisture and sludge in a storage tank.

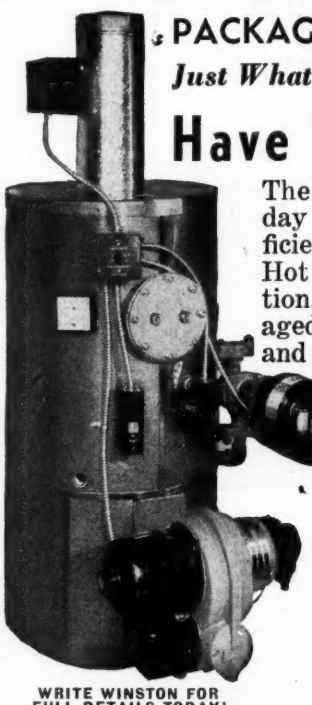
Added to most burning oils, the manufacturer says Oilate will replace the hydrogen atoms stripped from petroleum molecules by catalytic refining, restoring the "balance" to unsaturated hydro-carbons. Another function of Oilate is to break up sludge in a tank, hold it in suspension so that it can be burned. Repeated use is recommended to clean out sludge accumulated in the bottom of a tank. Oilate's

MASTERFLAME

PACKAGED OIL-FIRED UNIT

Just What Your Customers Need!

Have YOU Got It?



The homebuilder's demand today is for compactness, efficiency and economy in every Hot Water or Steam Installation. The Masterflame Packaged Unit comes fully wired and furnished with

- **Tankless Heater**
- **Protecto-Relay**
- **Thermostat**
- **Limit Control**
- **Operating Control**
- **Circulator**
- **Flow Regulator Valve**
- **Expansion Tank**
- **Angle Flow Valve**
- **Hot Water Dual Control Unit**
- **Also Designed for Steam**

WRITE WINSTON FOR FULL DETAILS TODAY!

WINSTON CO. INC.

33 Bradston St.
Boston 18, Mass.

165 Nye Avenue
Newark 8, N. J.

absorbent qualities are intended to protect against condensation within the storage tank. The product will absorb up to 40% of its own volume of water.

Made by: American Additive Co., 7301 West Lake St., Minneapolis 16, Minn.

New Wheelco Capacitrol provides anticipating "Straight Line" Control

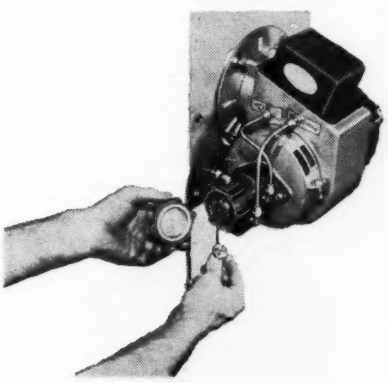
WHEELCO model 221C Capacitrol indicating controller features anticipating action of the Capaciline. Through a resistor network and relay circuit, the approach and departure is anticipated of temperatures caused by various heat transfer lags and load requirements. Also available are four additional model 200 series Capacitrols.

All models utilize the Wheelco "Electronic Link" for fast, accurate control with no contact between the measuring and control systems. Interchangeable voltage plugs are provided for 115 and 230 volts A.C. A thermocouple or resistance bulb may be used as the sensing element and when the resistance bulb is used, a standardizing unit is added to the instrument.

Made by: Wheelco Instruments Div., Barber-Colman Co., Rockford, Ill.

Majestic low pressure Oilburner uses Sundstrand air-oil Fuel Unit

MODEL EL Majestic low pressure oilburner, with capacity from 0.4 to 1.5 gph has been developed for use with the company's upflow and downflow oil-fired winter air-conditioners for small homes. Screwdriver adjustment (see illustration) in the capacity range may be made on the job by a quick-change of metering cam under the end cover of the fuel unit. A Sundstrand two-stage, low pressure standard fuel unit with built-in lift pump permits the burner to be used on underground tank installations and also with suspended furnaces. Production is geared for September deliveries.



Features include a non-clog, low pressure spray tip,

it's all new!

400 AF*

FLANGE MOUNTED OIL BURNER

*400-A pedestal mounted with 4" adjustment for standard type of installation.

US OIL BURNERS

designed for top performance in

- FURNACES
- BOILERS
- WATER HEATERS

Effectively Minimizes Pulsation.

With the addition of this new model, U. S. dealers are now able to flange mount U. S. Burners to the many furnace, boiler and water heating units that are so widely used in today's *home building* and *modernization market.*

This is no ordinary flange mounted unit, but an oil burner that represents the results of painstaking research and field tests to determine the most efficient and saleable unit for today's market in the furnace, boiler and water heater field. The 400 AF incorporates all the advanced engineering features for which U. S. Oil Burners are justly famous.

A specially designed air deflector baffle, adjustable in the field, insures a thorough mixing of air and oil at all times. This adjustable air deflector also provides positive positioning of fire from the end of the air cone. As a result, pulsation has been effectively minimized.

Remember this is only one of the famous U. S. Oil Burners — ranging in capacities from 0.50 to 20.00 G.P.H. You can install them with confidence — sell at a profit — require a minimum of service and carry a time-tested and trusted name.

Contact your supplier or write us today.

U. S. BURNER DIVISION
THE CARLIN COMPANY
Wethersfield, Connecticut

Speedy installation

QUICK AS HELLO AND GOODBYE

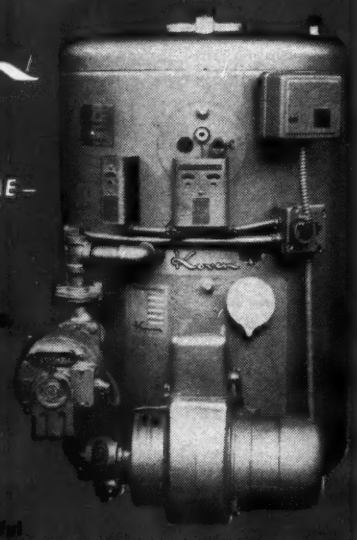
sells consumers
pays installers

with a

VENKO

PACKAGED UNIT

by Koven



SAVES INSTALLATION TIME–
Comes fully wired and equipped

SAVES HANDLING TIME–
Shipped in easy handling, protective crate which won award in National Competition

SAVES SERVICING TIME–
Only 6 parts to remove

SAVES SPACE–
Compact—rugged—beautiful

ECONOMICAL HEAT AND HOT WATER–
3 sensitive controls

Venko helps you break down buyer resistance. Its three sensitive controls assure low-cost heat and hot water. And more — Venko comes completely wired and equipped for quick installation with burner, circulator and controls in place, ready to operate. This means convenience for your customers—hours of time and labor saved for you. In addition, Venko is so compactly crated that one man can handle the entire unit which fits through a 30 inch door.

Built to fit the modern home

NATIONALLY ADVERTISED

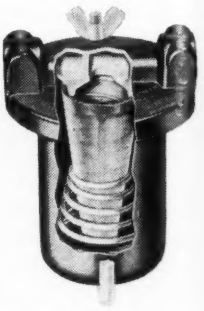
WATERFILM BOILERS, INC.
a division of L. O. KOVEN & BRO., INC.
154 Ogden Ave., Jersey City 7, N. J.
Plants: Jersey City, N. J. • Dover, N. J.

positive shut-off valve, easy-access air tube assembly, swing-away transformer, cast aluminum fan housing with built-in junction box, 4-in-1 multiple break-away baffle plate, multiple air adjusting bands. All parts are standard.

Made by: The Majestic Co., Inc., Huntington, Ind.

A-P Controls adds fueloil Filter designed for light oil Installations

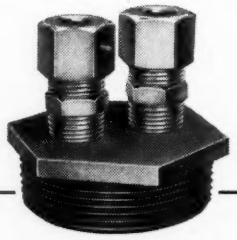
A FUELOIL FILTER announced by A-P Controls features quick, easy cleaning and a lifetime strainer. Rated at 2¾ gph on No. 3 fueloil and up to 5½ gph for Nos. 1 and 2 oil, the unit is made in two connection sizes, ¼" and ⅜" I.P.T. Model 243-SY fueloil "Trap-it" has a fine-mesh monel-metal screen, with extra large strainer surface. The monel-metal was selected due to its high resistance to corrosion.



Dirt and foreign matter are trapped on the outside of the strainer. Particles of dirt and water are trapped in the sediment chamber at the bottom of the filter body, which can be removed for access to the strainer or for cleaning by loosening two wing nuts. No tools are required.

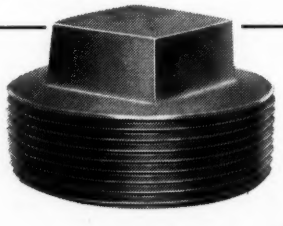
Made by: A-P Controls Corp., 2458 North 32d St., Milwaukee 45, Wis.

FOR FASTER FUEL TANK LINE INSTALLATIONS



THE NEW
BUCKEYE
DUPLEX TANK BUSHING

One tank opening does the work of two when you use the No. 857 DUPLEX TANK BUSHING. Just thread in the bushing unit and you're ready to connect both suction *and* return oil lines between burner and fuel tank. Installation is quicker, easier, more economical. Line fittings are machined brass. They can be removed from the cast iron body and replaced with plugs if desired. Bushing size is 2 inches; fittings and plugs are available in ⅜ or ½ inch sizes (any combination).



BUCKEYE No. 4084 TANK PLUGS
Available in these sizes: 2 inch (¾ lb.), 3 inch (1¾ lb.), 3½ inch (2½ lb.) and 4 inch (3½ lb.).

Buckeye

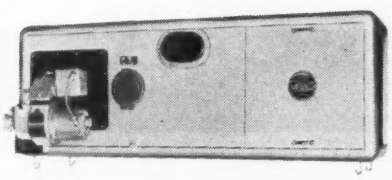
BUCKEYE IRON & BRASS WORKS, P. O. Box 833, Dayton 1, Ohio

heaters are adaptable to the use of gasoline, kerosene or No. 1 fueloil. Each has its own fuel pump and thermostat.

Made by: Perfection Stove Co., 7609 Platt Ave., Cleveland 4, Ohio.

Century horizontal furnace Unit for domestic, commercial Uses

FOUR SIZES of oilfired horizontal furnace-burner units have been announced by Century, with bonnet output ratings of 85,000, 105,000, 135,000 and 160,000 Btu. Each is fired with Century pressure atomizing burners. The new unit was designed to meet the need for space-saving, low-cost installations.



For home heating the units may be used in attic, crawl space or overhead basement installations; for industrial and commercial use they can be used singly or in batteries in overhead or out-of-the-way places.

Made by: Century Engineering Co., 401 Third St.. S. E., Cedar Rapids, Ia.

Bell & Gossett relief Valve is smaller with more Capacity

A NEW B & G 1¼" relief valve is smaller in size, lower in cost, but has increased capacity, being about half the size of its predecessor and weighing about 1/3 as much. It has a rated capacity of 1,050,000 Btu's at 30 lbs., compared with 1,000,000 Btu for the former model.

The new unit is equipped with a non-ferrous high temperature seat which assures positive action under the most extreme water conditions to give full relieving capacity under emergency pressure increase. A slight increase in pressure over the valve setting brings a correspondingly low water relief.

Made by: Bell & Gossett Co., Morton Grove, Ill.

Cristy Specialty announces range and fueloil Conditioner

AN OIL CONDITIONER for oilburning space heaters, oilburners, stoves and ranges has been announced by Cristy Specialty. The fuel and range oil conditioner is intended to prevent moisture condensation in fuel lines and in storage tanks and eliminate rust and sludge formations.

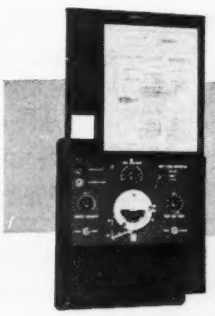
Regular use is recommended to assure cleaner burning and trouble-free operation, as well as more efficient use of fuel. Packages are distinctively designed with funnel tops in 12 and 32 oz. sizes. For the 12 oz. cans special Tri-Pak cartons are available.

Made by: Cristy Specialty Corp., Worcester 4, Mass.

Make Customers and Influence Profits with HEAT-TIMER

guaranteed controls and valves

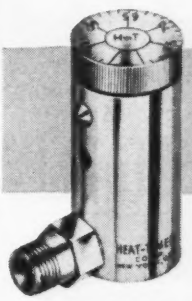
They have no competition



The Heat-Timer Control takes the guesswork out of heating installations

HEAT-TIMER CONTROL

automatically times heat supply to weather, makes possible up to 40% fuel savings; has other important efficiency and economy features. No other control **at any price** offers equal benefits. Installations sell for you. Owners recommend Heat-Timers; managing agents install them in all their buildings. You build for customer satisfaction and increased profits with every Heat-Timer Control that's sold.



Heat-Timer Valves take the "bugs" out of hard-to-balance 1-pipe steam systems

precision-made; long-life; brass, chromeplated.

HEAT-TIMER THERMOVALVE automatically maintains accurate temperatures, room by room. Has built-in dial thermostat. Does not interfere with existing controls. Angle or straight shank. **List $3.95**

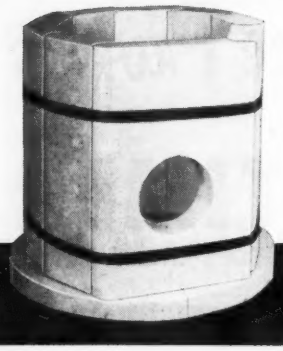
HEAT-TIMER VARIVALVE gets heat fast to those hard-to-heat rooms, mains and risers. Venting orifice, variable 0" to 5/16". Angle or straight shank. **List $3.45**

HEAT-TIMER CORP'N

657 Broadway, New York 10, AL 4-5380

Mfrs. of HEAT-TIMER Electronic Controls, Thermovalves, Varivalves, Motorized Valves; Smoke-Eye Smoke Alarm; Fire-Chief Fire Alarm and other outstanding products.

AMERICAN COMBUSTION CHAMBERS *mean Efficient Installations!*



American now offers a greater variety of Combustion Chamber designs to meet your particular installation problems efficiently.

Made of the finest, high-grade fire-clay material, American Chambers are "Kiln-cured" to withstand temperatures up to 2500° as well as water deterioration. And too — American's high quality materials assure faster heat-ups and quieter burner operation. Find out today why more American Combustion Chambers are being used—than ever before!

Descriptive literature is available.

THE AMERICAN CLAY FORMING COMPANY

Tiffin, Ohio ★ Tyler, Texas

Manufacturers of Specialized Refractories For Over 30 Years

Penn Controls

(*Begins on page 60*)

Penn Controls enthusiasts wind up with these advantages of Penn primary panels of all types, including stack-mounted panels and burner-mounted panels of two-unit set-ups:

1. Not sensitive to ordinary tilting, hence require no leveling.

2. Stack element has ample reserve power to overcome effects of sooting.

3. Panels are engineered to be easy to install, wire, and inspect.

4. Stainless steel parts in stack heat-sensitive devices resist corrosion and high temperatures—good for stack temperatures up to 1,000° F.

5. Adjustable shank ventilation improves performance on installations having slow-heating smokepipes or running unusually low stack temperatures.

6. Warp switch which provides the safety timing is factory sealed to insure proper timing; cannot be blocked in closed position; had self-cleaning contacts; is fully compensated for ambient temperature variations.

7. Foolproof, double-disc, friction clutch for operating combustion contacts; easy to put in starting position.

8. All contacts readily accessible for inspection.

Those, of course, are the rave points as given out by Penn Control enthusiasts. A big point in this series of articles is to list rave points which are cited by enthusiasts for each make of control covered.

Klemm

the only **FUEL OIL FILTER**

Model 430G

✓ *in metal or glass*
✓ *with CHEMISTONE filter element*
✓ *that guarantees customer satisfaction*

FREE!

Get this attractive, sales-producing counter display that holds 12 Klemm Fuel Oil Filters—6 with glass bowl and 6 with metal bowl.

Klemm PRODUCTS

DIVISION OF

KLEMM AUTOMOTIVE PRODUCTS CO.

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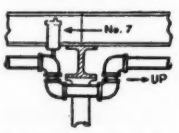
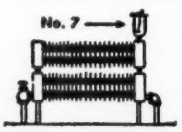
Automatic Air Vent

No. 7 AUTO-VENT

for . . .



Venting trapped mains and circulating lines



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AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

3221 N. Pulaski Rd. CHICAGO 41, ILL.

Readers' Problems

Q. On coldest days, every point in the rooms of this bungalow is between 70° and 74°. Thermometers at breathing level, and more than two feet from outside walls. Heating seems perfect. Even the owner can not point out a spot that's drafty. Supply and return registers all give proper fpm readings. Yet owner says improper locations of supply and return registers are giving him oversize fuel bills. Can this be true with perimeter heating or any kind of warm-air heating?

W. B. O. B., Des Moines, Ia.

A. You've given us one side of an argument, and you seem to have proved your point. Under the conditions you outline, oversize fuel bills can't be caused by improper locations of supply and return registers.

Q. I am trying to locate information on pump pressure setting . . . in relation to the nozzle. We work on gun type, blower type furnaces.

A. H. R., Lost Nation, Ia.

A. Most experts servicing pressure-atomizing burners have a simple answer to your problem: Use 100 lbs. atomizing pressure as standard. As shipped by their manufacturers, most fuel units for pressure burners are set for approximately or precisely 100 lbs. nozzle pressure or atomizing pressure.

Occasionally a service expert on equipment recommends the use of somewhat lower than 100 lbs. nozzle pressure for low-capacity installations. For instance, a furnace manufacturer instructions are to use 75 lbs. pressure and a 1.0 gph nozzle to obtain a firing rate of about .85 gph. This avoids the use of a .85 gph nozzle (at 100 lbs. pressure) the manufacturer points out, and is helpful in avoiding plugged-nozzle service calls because a .85 gph nozzle has greater tendency to plug than a 1.00 gph nozzle.

Certain service experts do not hesitate to run the atomizing pressure up to 125 lbs., or even 150 lbs., where this gains higher efficiency or cleaner burning, as proved by the use of instruments for measuring smoke, CO_2, and stack temperature. This unusual practice applies mainly to installations of medium and large size, fired about in the range of 2.5 to 25 gph.

Q. Have you data on draft settings? Starting to use combustion testing instruments, we have been referred to you by the manufacturer of the instruments.

A. H. R., Lost Nation, Ia.

A. Adjust for the proper over-fire draft; read the smokepipe draft also, but regard it as of lesser importance. Simply adjust the smokepipe draft regulator for the lowest over-fire draft that does not give the troubles of insufficient draft. The troubles of insufficient draft usually include signs of soot, smoke, oil odor, or products

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Fulflo's Honeycomb Filter Tube is a guarantee of dependable oil burner performance. Its true depth filtration stops costly service calls, and assures the home owner highest oil burner efficiency always.

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of combustion around the furnace or boiler. Flame pulsation may result from insufficient draft. Experts who make certain of locating and sealing air leaks in furnaces and boilers often find that .01" to .02" is sufficient over-fire draft for typical domestic installations. Don't use higher over-fire draft unless you have to.

Q. Three years ago following instructions in your articles, I baffled flue passages of a cast-iron warm-air furnace, dropped the smokepipe from 820° to 515°, and because of this and a lower firing rate got a fuel savings of practically 40%. Now am told by furnace company factory rep. that his units give 600° to 700° smokepipes to avoid poor draft. Is 515° too low for good draft?

N. L. J., Jamaica, N. Y.

A. No! The draft is sufficient on many jobs that give stack temperature readings as low as 400° to 450°. You should use combustion instruments to take readings on the 515° stack job that you are so proud of.

Q. Can a defect in a 1/3 hp motor on a pressure burner cause slight ignition delay and a starting bang every so often?

W. V. Q., Cleveland

A. Yes, if the defect causes the voltage at the burner and ignition transformer to drop greatly until the motor gets up to speed. Burners having healthy motors have given the same trouble, and adding delayed-opening oil valves to nozzle lines has ended it.

Q. How much oil is saved yearly by best insulation, like 2" rock wool or glass wool, on a 1.5 gph hot water boiler used year-round? Compared to no insulation?

P. F. E., Springfield, Ill.

A. The answer is different for different 1.5 gph boilers. A 2.0 gph boiler, carrying no load and kept at 200°F., used about 2.2 gallons of oil per day not insulated, and well-insulated used about .85 gallons per day. On this basis, the insulation saves about 500 gallons per year. Your 1.5 gph boiler is smaller, probably won't be kept at 200°. As a guess, the insulation should save not less than 150 gallons per year, not more than 300 gallons.

Q. This prospective customer has a second-floor apartment. Both floors are heated by one undersize oil-fired warm-air furnace. We are asked to install a second furnace to heat separately the upstairs apartment, eliminate usual landlord-tenant troubles.

This is possible by changing the ducts under the house, we determined. But there is only one 8" x 8" chimney flue, and the present furnace is the highly baffled type and now is on verge of pulsating. Should we insist that another chimney be built rather than risk connecting to the 8" x 8" flue? First furnace fired 1.00 gph, other .75 gph.

To cut costs, can the present cold air trunk feed both furnaces? Would this result in drafts in one apartment when its burner is off and the other furnace blower is going? Would the furnace with the more powerful blow-

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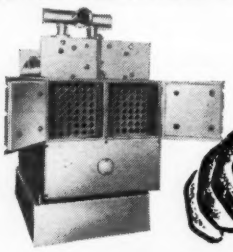

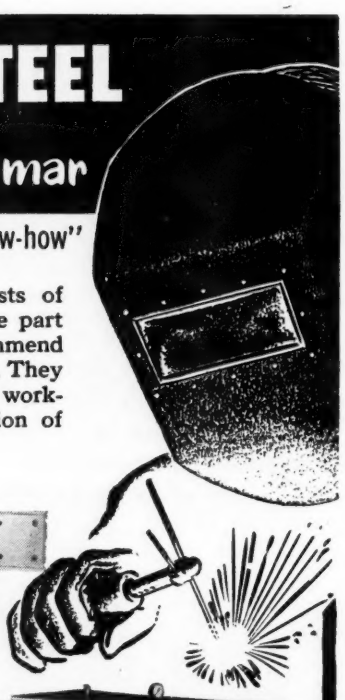

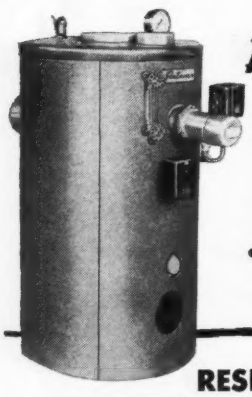

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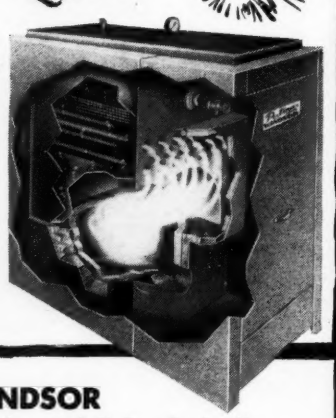

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er rob the other of cold air with both going? I will be thankful for your advice.

W. H. B., Point Pleasant Beach, N. J.

A. Don't connect two furnaces to the 8" x 8" flue! But consider using a draft inducer, for it may cost less than a new chimney and give better results. Get complete technical data from manufacturers of draft inducers, including Quickdraft Company, 1640-B Cleveland Ave., N.W., Canton 3, Ohio. Also L. J. Wing Mfg. Co., 66 Vreeland Mills Rd., Linden, N. J.

Before making final plans and selling the job, submit detailed plans to the manufacturer of the draft inducer equipment you consider using, and if possible obtain the manufacturer's approval of your plans. Jobs like this can be tricky! Using a powerful inducer may put plus pressure on the chimney. In that case, an inside chimney must be gas-tight so that products of combustion do not appear in the rooms. If a draft inducer can't be used to save money, then you'd need the new chimney.

Studying your last paragraph, we hope you mean inside-air return duct system where you say "cold air trunk," for cold outside air should not be given a furnace. For the reasons you mention and also to insure privacy for the occupants of both apartments, each furnace should have its own return system made up of inside-air return registers and ducts adequate for the furnace capacity. The manufacturers of the furnaces probably can give you the data you need regarding the two return-air systems.

You are wise to bring up questions before plunging into an unusual installation. Efforts to sell cheap jobs for existing two-family homes are making trouble and losses for many oilburner dealers. If you can't sell this owner adequate, well-installed equipment, you'd better sell him nothing!

Q. I have a wood-burning, one-pipe heater. I wrote the manufacturer asking if the furnace could be converted to oil, and they replied they never heard of such a conversion, and had no data on the matter. Can you tell me where I can find out?

A. G. H., Mont Vernon, N. H.

A. Yes! From your letter and question we gather that you are a home owner and, after gaining assurance your furnace is suitable for oilfiring, would aim to buy an oilburner installation from a well-qualified local oilburner dealer.

You ask how you can find out if your furnace can be converted to oil. You can find out by calling in well-qualified local oilburner dealers. We suggest you also call in fueloil company men who are experts at oilheating.

Q. For some time we have had your book, "Beacon Radiation Reference Book and Heat Loss Guide," but never have used it much. We would find it helpful if we understood it better.

Please tell us just how to compute the radiation for these two sample rooms? Forced hot-water heat. Ceiling height 7' 6".

(*Please turn to page 141*)

BLACKMER *first choice*
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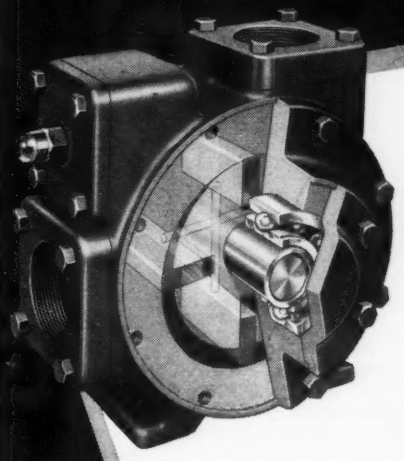

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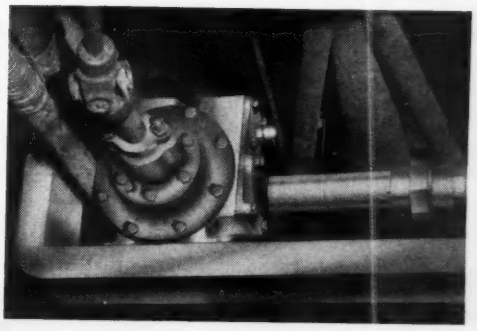

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Fueloil for Cooling

(*Begins on page 71*)

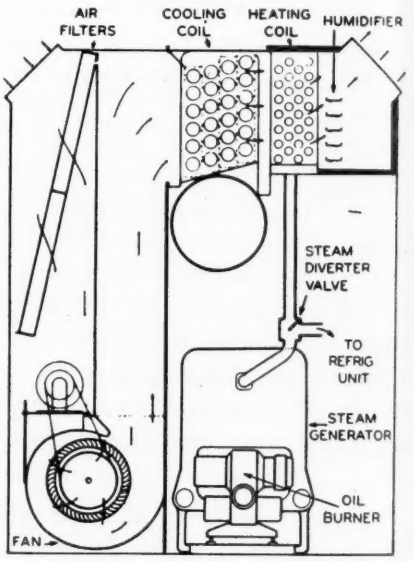
frigerant vapor continues to rise upward naturally to the condenser while the absorbent solution flows by gravity to the liquid heat exchanger and absorber. As there are two circuits of flow, they will be described separately. The first, is the refrigerant circuit.

The refrigerant vapor rises until it reaches the condenser, where it is condensed to a liquid by the cooling action of water flowing through the tubes of the condenser. Such cooling water comes from an external source, such as a well, city water main or a cooling tower.

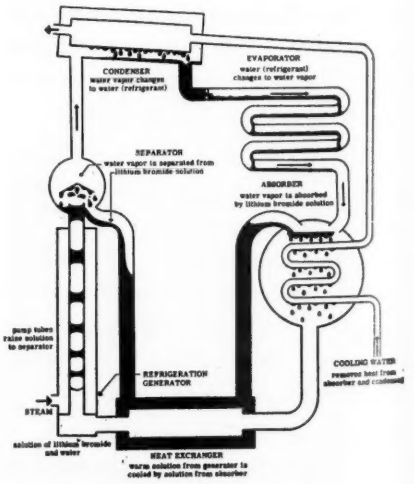
From the condenser, the refrigerant in liquid state now flows through an orifice to the evaporator. The orifice, like an expansion valve, serves to maintain the pressure differential between the condenser and evaporator. Upon entering the cooling coil, the refrigerant liquid vaporizes due to the lower pressure (vacuum) that exists within it. The high vacuum lowers the boiling temperature of water sufficiently to produce refrigeration.

The cooling coil evaporator is of the direct expansion type with horizontal finned tubes over which air passes to provide heat for evaporating the refrigerant. This process cools and dehumidifies the air stream.

Meanwhile the second circuit is in action. This is the absorbent liquid circuit. As the refrigerant is making its circuit, the absorbent liquid flows by gravity and pressure differentials



A simplified *line drawing giving a view of the interior of the unit. This illustrates the return and supply sides of the unit. Note the location of the cooling and heating coils and the small oilfired cast-iron sectional steam boiler. The boiler supplies steam that is used by both the cooling and heating sides.*



This schematic drawing *shows how Servel's direct expansion unit produces refrigeration, utilizing steam heat as the motivating force.*

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Use the annual summer cleaning of oil burners as a sales opportunity for repairs and improvements. By cleaning installations with a Super Red Streak Model SH Furnace Cleaner, you beat competitors to sales of auxiliary oil line filters, combustion chambers, draft regulators, new controls, new smoke pipe, covering of tankless domestic hot water units, clock-type thermostats and other items.

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It's easy to build a profitable furnace cleaning business. This book tells you how. Your wholesaler can give you complete information on the Super Red Streak Model SH or ask us.

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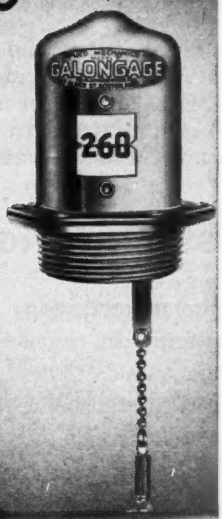

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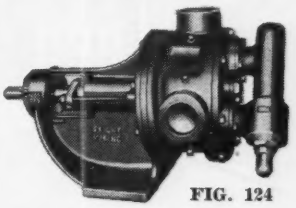

FIG. 124

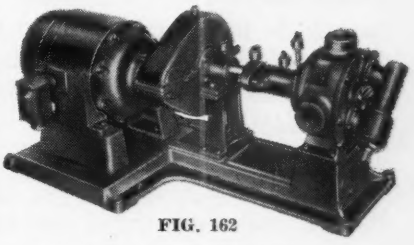

FIG. 162

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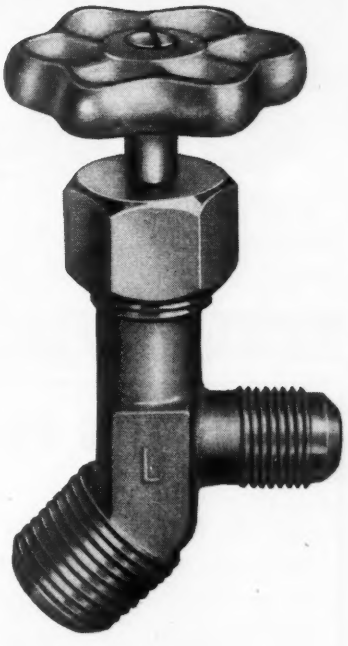

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through the liquid heat exchanger to the absorber. The absorber is a cylinder type shell that contains a coil through which cooling water going to the condenser circulates. The absorbent solution flows into the top of the absorber and is distributed over the cooling water coil, exposing as much of the solution as possible to the refrigerant vapor which is also flowing into this chamber from the cooling coil. The refrigerant vapor flows downward to the absorber because of the strong attraction of water for lithium bromide. Lithium bromide, in either dry or solution form, has a very strong affinity for water vapor.

The resulting mixture of refrigerant and absorbent drains back through the heat exchanger to the refrigeration generator and the cycle is repeated.

The entire system as employed for heating and cooling has two cycles, the heating cycle and the cooling cycle. While the explanation given concerns itself with the refrigeration unit alone, there is more to the picture as the complete operation of the heating and cooling systems will show.

When heat is required, steam at atmospheric pressure is developed in the boiler and is delivered to the steam heating coil over which air is drawn by the blower. At full capacity, the blower rate is from 1,200 to 1,400 cfm, but both air and oil input can be reduced proportionally where full capacity is not required.

The steam condenses in the cooling coil and the air is warmed during the process. Condensate returns to the boiler by gravity. The heated air then

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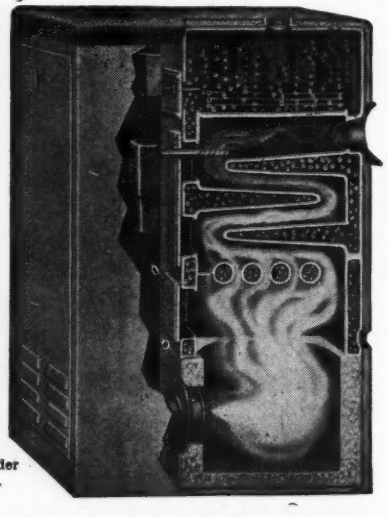

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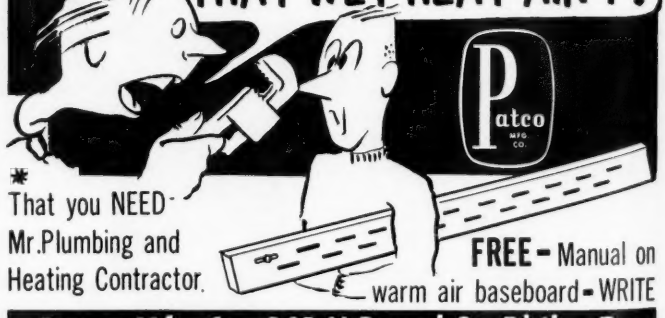

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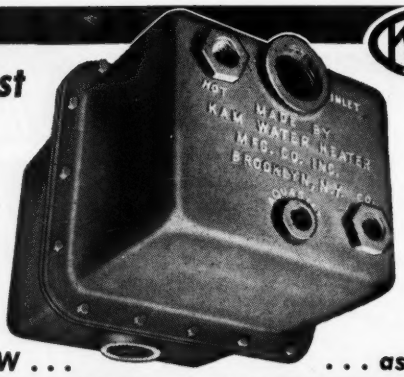

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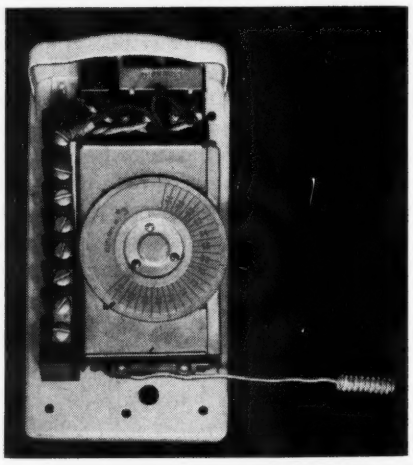

A cut-away view *of the Selectrol. This thermostat provides both summer and winter temperature control.*

passes over a humidifier and is delivered by the blower to the rooms requiring heat.

During the summer when cooling is required, steam from the same boiler is furnished at atmospheric pressure to the absorption refrigeration unit which produces refrigeration effect in the cooling coil as described earlier in this article. The air is drawn by the blower over the coil and is cooled and dehumidified in the process. It is then delivered to the rooms requiring the conditioning. The blower rate is from 1,200 to 1,400 cfm, the same as for heating.

A single thermostat with two switches on top permit choice of cooling, heating, or plain ventilation. Steam from the generator is diverted, by changing of switch position to either the heating or cooling portion of the system. A single temperature dial serves summer and winter.

Instant-Glo COMBUSTION CHAMBERS

Made from Genuine Kiln-Burned Insulating Brick

The Highest Possible Efficiency is obtained with INSTANT-GLO CHAMBERS

REGULAR ROUND MODELS for Boilers and Cast Iron Furnaces 4 Models—.75 to 3.0 GPH

"A" MODELS for Steel Furnaces 3 Models—.75 to 1.75 GPH

The New "NARROWBOY" Line for Narrow Boilers and Furnaces 7 Models—.75 to 5.0 GPH

Also available: 2600° ROUND CHAMBERS—3 Models—1.00 to 2.00 GPH

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Oil Heating Supplies Division, Manufacturers, Lynn, Mass.

HomEase is the Burner that offers you the Exclusive

FLAME-IZER . . . ***high CO_2 flame-fitting to the individual fire-box, quickly, easily!***

FIRE-STAT . . . ***more starting air—thus less sooting and smoking on cold starts!***

MORE SALES.. GREATER PROFITS *easily!*

VARIOUS MODELS: .5 to 15 gph

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East St. Louis, Illinois

Readers' Problems

(*Begins on page 133*)

Room #1, 10′ x 16′; two windows 2′ 6″ x 4′; one door 2′ 6″ x 7′; two exposed walls, north and south; cold ceiling.

Room #2, 10′ x 11′; two windows 2′ 6″ x4′; two exposed walls, north and west.

No building insulation, no storm windows. Figure design temperature 15 below zero for Glens Falls.

S. H. I., Glens Falls, N. Y.

A. First, you should have studied thoroughly the five pages of instructions that form the Foreword of the book. These pages contain all the instructions you need.

Figure the ceiling height as 7′, for the Foreword tells you to drop off the inches where there are six or less and to count 7″ or more as a foot.

On the page headed 10′ x 16′ (the dimensions of Room #1), you find that two windows, two 10′ exposed walls, and 7′ ceiling height requires 29 sq. ft. of steam radiation. Add to this the 11 sq. ft. of steam radiation noted at the bottom of the page for top-floor roof exposure, and the room needs 40 sq. ft. of steam radiation.

Because you indicate the door, we conclude it is an outside door. For the 17½ sq. ft. of door area, add 6 sq. ft. of steam radiation in accordance with the instructions under "Exposed Doors." Thus 46 sq. ft. of steam radiation are needed for Room #1. The instructions tell you to add one-third to steam radiation figures, where forced hot-water heat is being installed. On

THOUSANDS OF OIL HEAT DEALERS SWEAR BY GORTON VALVES

Steam jobs can only be as efficient as the venting valves used. Many inefficient steam jobs need GORTON VALVES to make all radiators heat *evenly* and *quickly*.

Join the thousands of Oil Heat Dealers who have used GORTON VALVES for years.

Write today for free, interesting data.

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Since 1887—Manufacturers of Heating Equipment
CRANFORD NEW JERSEY

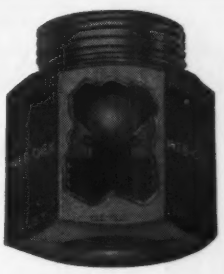
NEW WEB-CHEK® VALVE

BECOMES AN INTEGRAL PART OF WEBSTER FUEL UNIT

. . . assures "absolutely tight" closure

Designed to replace the Webster Fuel Unit inlet bushing, the new Web-chek is *essential for holding the prime* on Suspended Furnaces and Hi-boys.

- eliminates many unexplained "on safety" service calls
- used on both single and double stage fuel units
- easily installed in shop or field without pump disassembly, gaskets or pipe dope required



For use on all one and two pipe jobs. See your jobber or write direct.
Specify size: ¼" or ⅜".

HOLD-TITE VALVE MFG. CO., 550 FIFTH AVE., NEW YORK 36, N. Y.
VALVES • CONTROL REPAIR PARTS • SPECIALTIES

KEEP THE JOB SIMPLE!

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FUELGUARD
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They put an end to fussy, expensive installation. They fit in the suction line of the pump, need no special pipe, wire, or tank connection.

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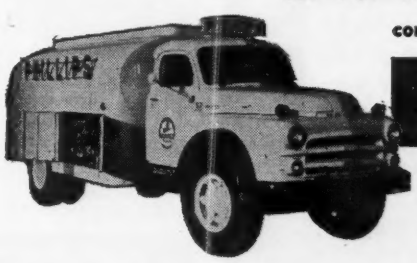
Depend on DECKER BROTHERS
for TOP VALUE in 1953
completely* packaged



FUEL OIL TRUCKS

*Includes chassis, tank, pumping and metering equipment.

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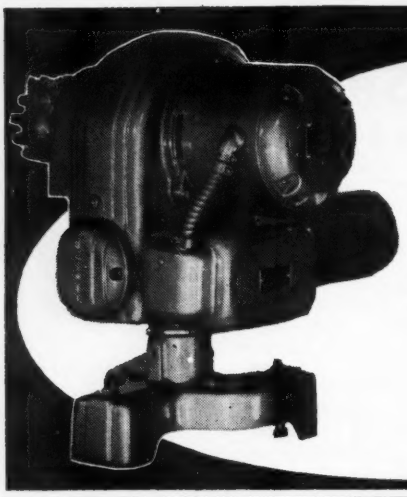
300 LINCOLN AVENUE, HAWTHORNE, N. J.



Here's Why REXOIL Dealers Make More PROFIT!*

- 25% LESS INSTALLATION COST*
- 75% FEWER SERVICE-ADJUSTMENT CALLS*
- FREE ENGINEERING AND ADVERTISING ASSISTANCE!

* *Conclusions resulting from independent survey of oil burner dealers.*

JOBBERS & DEALERS: Here's a truly TROUBLE-FREE OIL BURNER — in all sizes — that not only makes more money for you — but satisfies your customer better, too. Write today for complete information.

REIF-REXOIL, INC.
37 CARROLL STREET BUFFALO 3, N. Y.

that basis, the room needs 61 sq. ft. of forced hot-water radiation.

If you consider the room unusually exposed, you follow the instructions and add 15% for a western exposure, 25% for a northern exposure, using your best judgment about that. We judge the room needs from 61 to 76 sq. ft. of forced hot-water radiation . . . on the basis of making such radiation one-third larger than steam radiation. You may, however, want to make forced hot-water radiators only 20% larger than steam radiators, as many engineers do.

The windows are only 10 sq. ft. each, according to the dimensions you give, whereas the book is in terms of 15 sq. ft. per window. Correct for that, if you want minimum radiation.

Starting to figure Room #2, on the 10′ x 11′ page you find a room of this size having two windows, one 10′ side exposed and one 11′ side exposed, and 7′ ceiling height needs 23 sq. ft. of steam radiation. Adding one-third to convert to forced hot-water increases this to 31 sq. ft.

All these figures, on the basis used so far, are for design temperatures of zero outside and 70° inside. To put the radiation figures in terms of 15 degrees below outside and 70° inside, add 22% to each figure. That jibes with the instructions in the book about adding 14% for ten below, 29% for 20 below.

❖

H. Richard Nielsen has been appointed sales manager of the air conditioning division, Servel, Inc.

OIL BURNER IGNITION ASSEMBLIES for industrial and residential use

CROWN offers a complete line of standard oil burner electrode assemblies, cable assemblies, hardware, terminals and UL approved cable. Quality is the finest available. Ceramic insulators are UL approved. Prompt, efficient, reliable service on all orders—large or small.

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RECTORSEAL #2

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AVAILABLE in ¼, ½ and 1 pt. brush-top cans; qts. or gals. in friction-top cans. Write —

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RECTORSEAL
Patented. Trade Mark Reg. U. S. Pat. Off.
NUMBER TWO

SERVICEMEN NEW HELIX TOOL

Simply insert Helix-tool onto "U" nut and tube for removal of tab screw.

YOU can now remove and install helixes for MH-RA-117 controls in a jiffy.

"Helix-tool" is a specially designed tool for simple removal and replacement of the helix in the MH-RA-117 controls.

Place handle of Helix-tool behind clutch rod, as shown, for screw removal.

A problem which has always been troublesome in servicing Helixes, is the matter of corroded screws, bending the tab and clutch rod. This especially designed "Helix-tool" solves this problem, because it holds the hard-to-get-at "U" Nut for removal and replacement.

Made of heat treated steel, rust proofed and fully guaranteed.

Get it from your jobber, or write direct.

To install, place "U" nut between tool fingers, insert into tube. "Simple, isn't it."

HYDROVALVE CO.
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ONLY McCORKLE CONTROLS
for Vaporizing Oil Burners
give you this combination of vital features

- Patented dual blade bi-metal assembly—insures trouble-free operation—supplies a wide margin of *extra* power.
- More rapid heat transmission.
- Snap acting Micro-switch.
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- Less service—greater customer satisfaction.

We will gladly furnish literature and specifications for your particular requirements. Write us today!

D. H. McCORKLE CO.
Box E, Station A Berkeley, California

Strategic Selling

(*Begins on page 55*)

Service furnished to non-oil accounts is $5.00 per hour. About 4,000 vacuum cleanings and overhauls are made per year.

Eddie Baerenklau believes that oil customers will only go to gas to avoid the headaches caused by bad installation or service. He believes that aggressive selling will surely beat gas competition in the days to come.

While all these efforts of the company to help itself meet the competitive threat are of a tactical nature, the company is very conscious of the fact that considerable strategic effort of an industry wide nature must be made in the Brooklyn-Queens area. Such a cooperative effort will be necessary if the job is to be done as effectively as it was in Baltimore and Milwaukee. This group merchandising effort will emphasize to the public the comparative benefits of oilheating and can be continually reinforced by the individual work of the dealers themselves.

The local New York Oil Heat Association and the Fuel Oil Council, representing oilheating men in the New York area are working on the problem now. The theme will be "Oil The Safe Heat, Costs Less Too!! It will be promoted with advertising, by direct mail, and all other modern means. Frank

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When You Buy
Draft Regulators Oil Burner Nozzles
Flame Mirrors Nozzle Kits Adapters
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YOUR ASSURANCE OF A QUALITY PRODUCT

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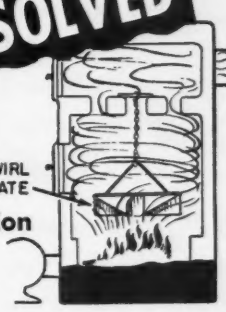
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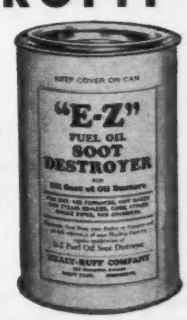
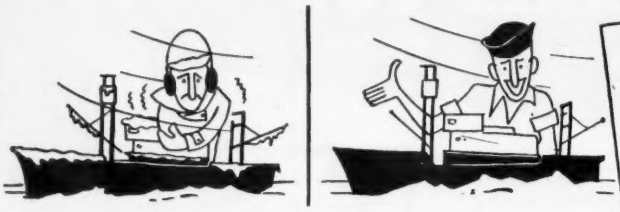


HEALY-RUFF COMPANY
797 HAMPDEN AVE. ST. PAUL 4, MINN.

10° Below Blitz on Submarine Patrol Boat Stopped Cold



XYZ burner on U.S. submarine patrol boat goes cold. Replacement for 110V. DC-115 AC take-off takes 6 months. Men freezing. Emergency call to Electrol. Results: All aboard snug and warm in less than 12 hours.

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22 Union Avenue, Rutherford, N. J.

Baerenklau, Sales Manager of Baerenklau & Co., appreciates the value of the effort that the associations will make. He says "it is simple—just a united we stand divided we fall proposition" and the sooner we all realize it, the better."

Frank says that "cutting prices will never do the job, but quality service and installation along with industry-wide promotion will." This is a sound statement of fact that the entire industry can only agree with.

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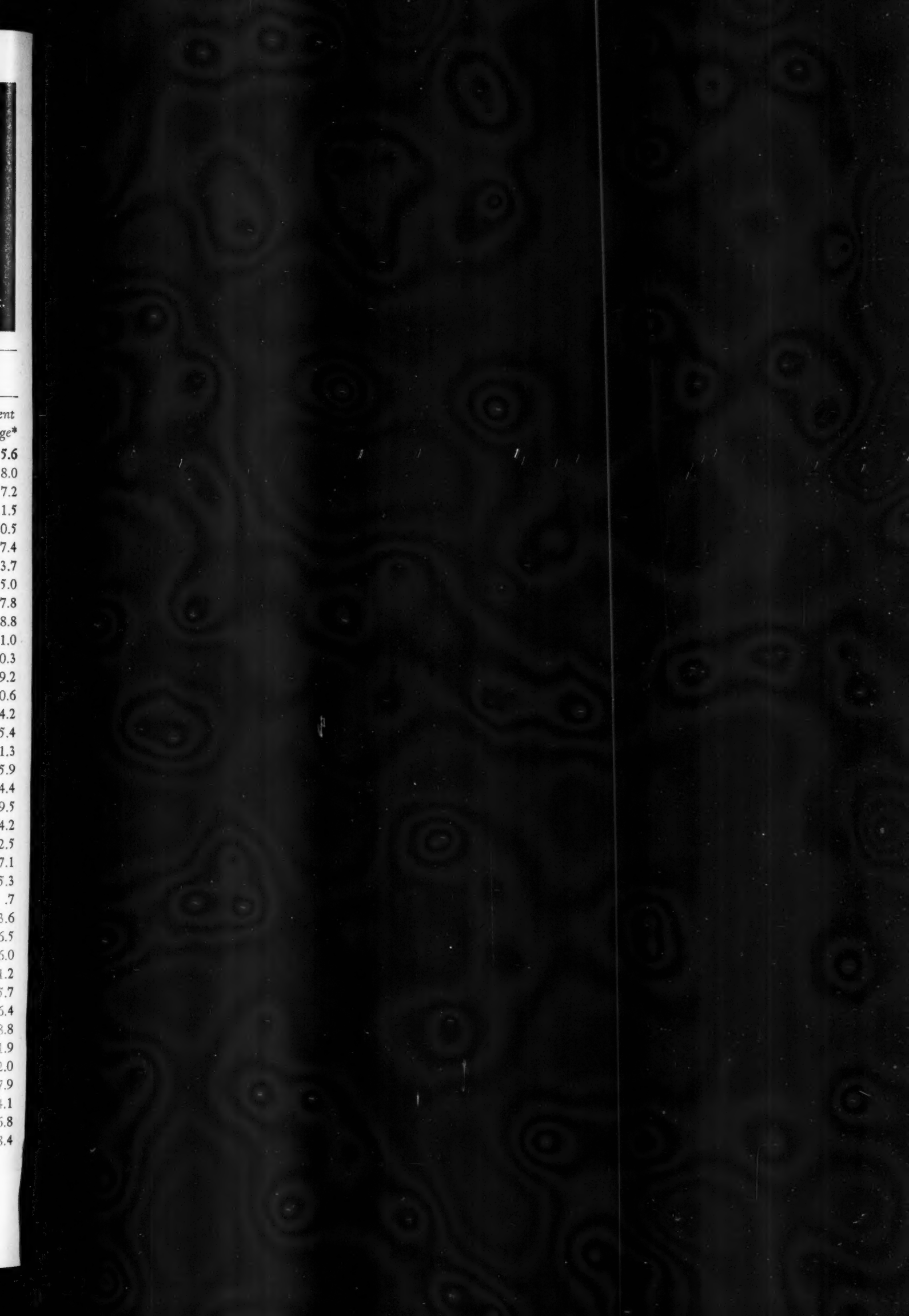
DEGREE DAY TABLES

ONE MONTH ONLY — May Normal	May 1952	May 1953	Percent Change*		SEASON TO DATE — Sept. to May Normal	Sept. to May 1952	Sept. to May 1953	Percent Change*
221	320	183	— 17.2	Albany	6587	6746	6216	— 5.6
32	24	8	— 75.0	Atlanta	2999	2690	2759	— 8.0
99	77	38	— 61.6	Baltimore	4509	3976	3733	— 17.2
248	238	215	— 13.3	Boston	5853	5420	5179	— 11.5
351	339	276	— 21.4	Buffalo	6805	6444	6092	— 10.5
259	223	225	— 13.1	Chicago	6205	6033	5749	— 7.4
132	86	46	— 65.2	Cincinnati	4993	4365	4310	— 13.7
255	235	179	— 29.8	Cleveland	6094	5582	5180	— 15.0
14	14	42	+200.0	Dallas	2378	2042	2192	— 7.8
271	232	331	+ 22.2	Denver	5784	5723	5278	— 8.8
165	188	203	+ 23.0	Des Moines	6356	6799	6389	+ 1.0
252	235	188	— 25.4	Detroit	6502	6242	5834	— 10.3
263	235	186	— 29.3	Grand Rapids	6655	6411	6045	— 9.2
216	256	164	— 24.1	Hartford	6037	5777	5397	— 10.6
409	368	516	+ 26.2	Helena	7600	8594	7283	— 4.2
12	0	3	— 75.0	Houston	1333	1006	1405	+ 5.4
155	144	62	— 60.0	Indianapolis	5459	5114	4845	— 11.3
106	91	149	+ 40.6	Kansas City	4971	5056	4678	— 5.9
104	10	82	— 21.2	Los Angeles	1363	1452	1303	— 4.4
92	74	31	— 66.3	Louisville	4421	4195	4002	— 9.5
340	333	302	— 11.2	Milwaukee	6955	7166	6664	— 4.2
255	224	237	— 7.1	Minneapolis	7898	8143	7698	— 2.5
1	0	0	..	New Orleans	1208	933	1001	— 17.1
176	176	116	— 34.1	New York	5270	4671	4465	— 15.3
152	138	186	+ 22.4	Omaha	6074	6552	6115	+ .7
115	110	71	— 38.3	Philadelphia	4720	4276	4077	— 13.6
170	158	48	— 71.8	Pittsburgh	5427	4832	4534	— 16.5
375	406	341	— 9.1	Portland, Me.	7128	7236	6701	— 6.0
241	198	276	+ 14.5	Portland, Ore.	4214	4234	3744	— 11.2
245	220	214	— 12.7	Providence	5946	5247	5011	— 15.7
86	64	7	— 91.9	Roanoke, Va.	4114	4066	3853	— 6.4
88	85	68	— 22.7	St. Louis	4602	4545	4197	— 8.8
233	134	331	+ 42.1	Salt Lake City	5568	5803	4908	— 11.9
252	239	265	+ 5.2	San Francisco	2569	2826	2621	+ 2.0
485	518	435	— 10.3	Sault Ste. Marie	8901	8817	8198	— 7.9
304	259	275	— 9.5	Seattle	4560	4345	3917	— 14.1
226	226	149	— 34.1	Toledo	6202	6147	5778	— 6.8
104	76	15	— 85.6	Washington	4582	3949	3741	— 18.4

*Compared with **normal.**